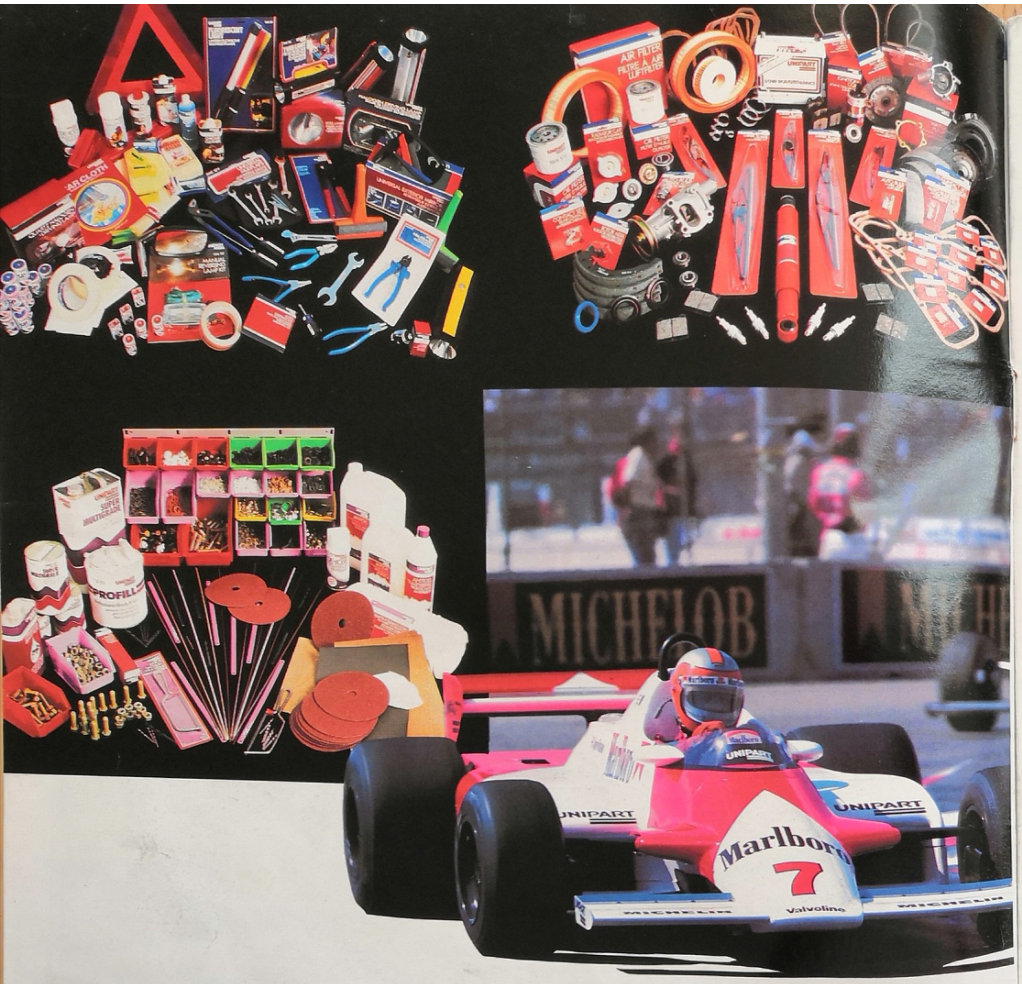
Grand Prix

INTERNATIONAL

GERMANY
AUSTRIA

M 1484 - 37 - 12 F

N° 37 - AUGUST 26th 1981 - GREAT BRITAIN 1 £ - CANADA $2.95 - USA $2.95 - IRL. £1.40



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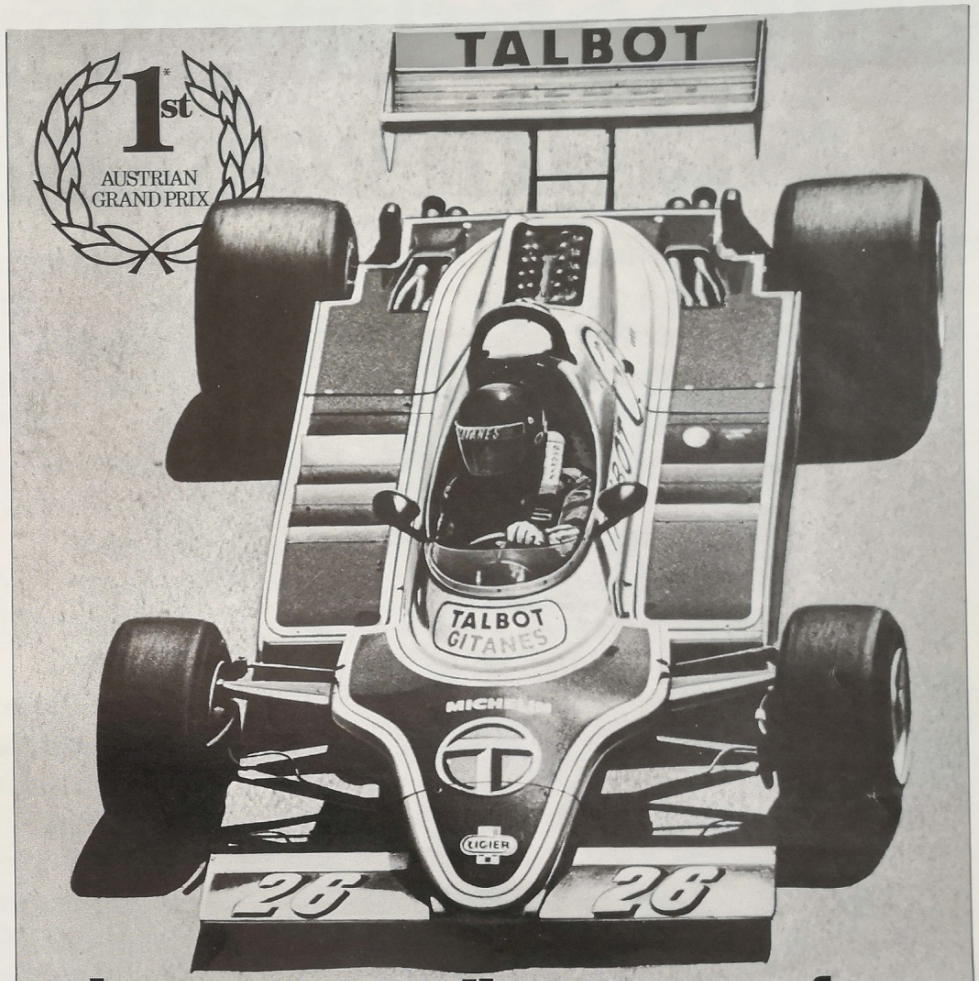

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See your Talbot dealer for further information on the Talbot Sunbeam, Horizon, Solara, Alpine and Tagora.

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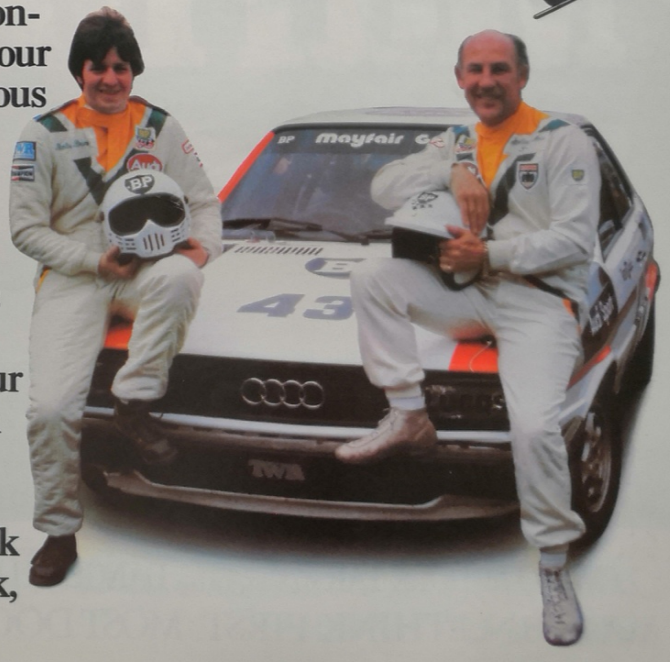
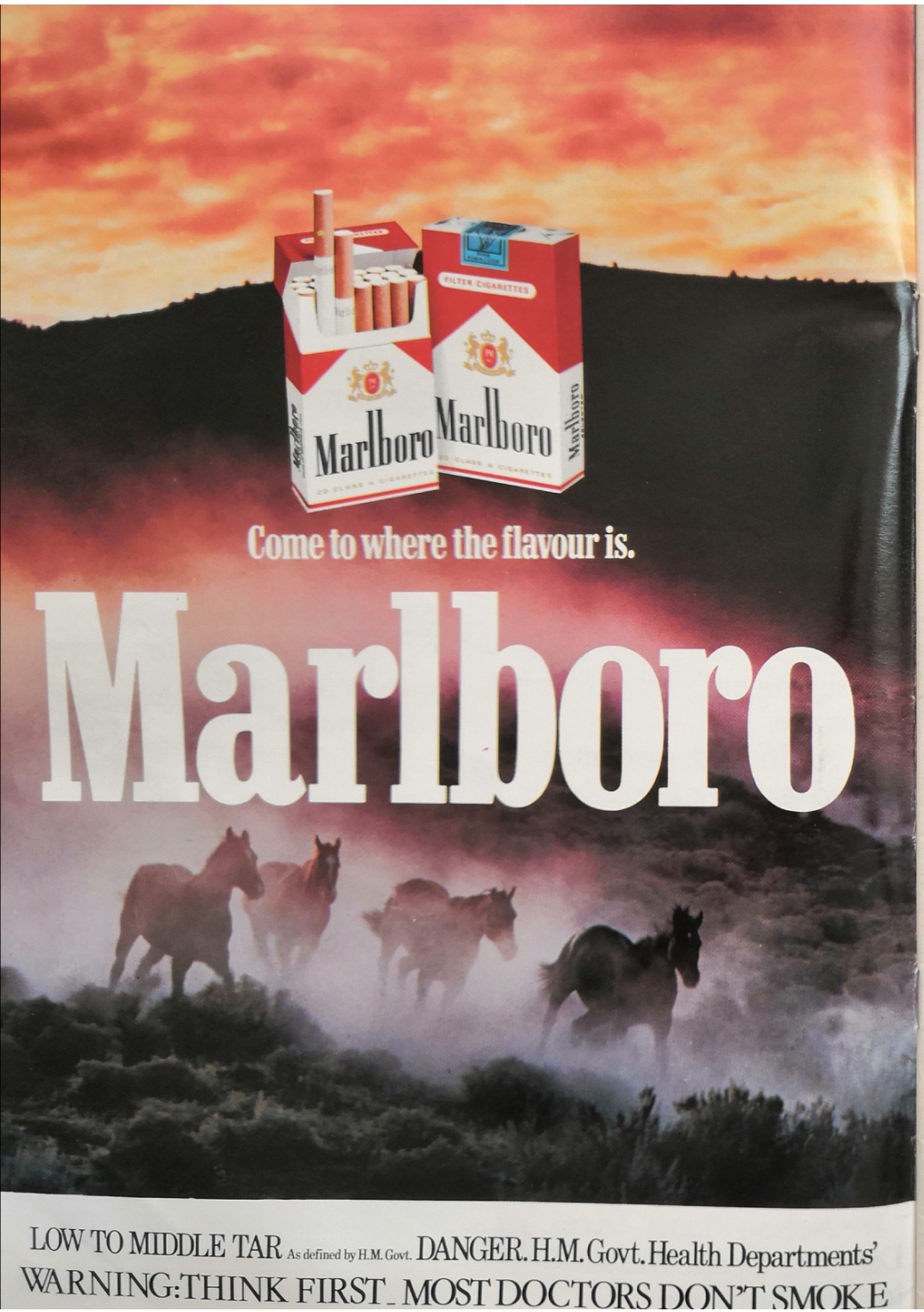
Now we reckon we've found another driver of great potential in Martin Brundle.

As yet, of course, he's still serving his apprenticeship.

But who better to learn from than the old master himself?

BP





IN THIS EDITION

PAGE 8
PADDOCK NOTES FROM GERMANY AND AUSTRIA

PAGE 10
TALBOT AND LIGIER CELEBRATE

Jacques Laffite and the All-Blues got the victory in Austria that they've been aiming for all year. For team owner Guy Ligier it was particularly rewarding.

PAGE 14
GERMAN GP
Six pages of news, statistics and photos from Hockenheim, plus our colour lap chart.

PAGE 20
THE FILM OF THE RACE...
...or, in fact, the tale of two races, one in Germany and one in Austria.

Nº 38 (HOLLAND) WILL BE ON SALE ON SEPTEMBER 9, 1981

Grand Prix international

PAGE 22
AUSTRIAN GP
Another half dozen pages devoted to the hard facts from the Osterreichring.

PAGE 28
RACE TALES FROM HOCKENHEIM AND ZELTWEG

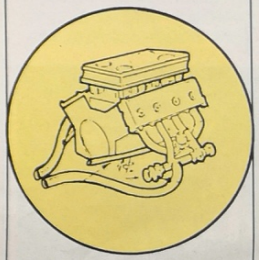
PAGE 36
FACE TO FACE: MARC SURER
Although he crashed in the German GP, and was

unable to start the Austrian, there is no doubt that Marc Surer is now more than just a promising F1 newcomer. He tells us about his frustrations and his hopes.

PAGE 40
GORDON MURRAY: BEHIND THE MASK

Everyone knows the Gordon Murray who designs winning F1 Brabhams. Eric Bhat's interview reveals that he's much more than just another racing engineer.

PAGE 44
TECHNICAL: AN ALFA WITH FOUR TURBOS!



With Alfa Romeo's turbocar about to appear, Giorgio Piola has been looking behind the scenes in the development of the new car from Milan.

PAGE 46
NELSON PIQUET GETS LUCKY

Luck remains the name of the racing game. It certainly smiled on Nelson Piquet at Hockenheim, where nine victory points put him back within reach of Carlos Reutemann in the '81 title hunt.

PAGE 49
PROST SCRIPTUM
Some lost opportunities for Alain...

PAGE 50
OK, AYJAY?

... and the same tale from Alan.

PAGE 51
TECHNICAL

The technical side to the GPs of Germany and Austria.

The Formula One magazine is published 10 days after each Grand Prix.

GRAND PRIX PUBLICATIONS Ltd., 6 York Street London W 1. Tel. : (01) 486.54.52. PUBLISHERS : Michel Hommell, Michel A. Konig. PUBLISHING DIRECTOR : Michel A. Konig. MANAGING DIRECTOR : Graham J. Rogers. INTERNATIONAL CO-ORDINATION : Doreen Rogers. ADVERTISING MANAGER : Jenny Collis. EDITORIAL : CHIEF EDITOR : Eric Bhat. ENGLISH EDITOR : Mike Doodson. ASSISTANT EDITOR : Bob Constanduros. CONTRIBUTORS : Giorgio Piola, Mario Luini, Michèle Dubosc, Keith Bosford. COLUMNISTS : Alan Jones, Alain Prost. ARTISTIC DIRECTOR : Marc Tournaire. EDITORIAL SECRETARY : Regis Lacroix, Martine Fréour. LAY-OUT : Pascal Tournaire, Alain Convard, Jacques Gaiotti, Jean-Jacques François. ILLUSTRATIONS : Serge Thomassian, Nicolas Geron, Antonios Stephanakos, Didier Bussat, Willy Richard. PHOTOGRAPHERS : Bernard Asset / A + P, SAM, DPPI, David Winter, E. Lothar. Grand Prix International is published in six languages : English, French, German, Italian, Spanish, Dutch. PARIS HEADQUARTERS AND EDITORIAL : 7, rue de Lille 75007 Paris, FRANCE. U.S.A. : Long Beach GRAND PRIX ASSOCIATION 100 E Ocean blvd 908 Long Beach CA 90802. WEST GERMANY : Industriestr. 92 / 4044 KAARST. ITALY : Editoriale Arbe, S.R.L. Via Arbe, 10 20125 Milano. TEL : 02 / 60.08.26. SPAIN : P. Castellana 169 - Madrid - 16. HOLLAND : Genav / Autorensport - Postbus 242, 2040 AE Zandvoort. Distributed by Seymour Press Ltd., 334 Brixton Road, London SW 97AG. Telex : 8812945 SEYPRESS LONDON. Printed in Belgium by Hoorens Printing.

SECOND CLASS POSTAGE PAID AT LONG BEACH, CA. USPS 597-330

Send address change to LBGP 100 E. Ocean Blvd. 908 Long Beach CA 90802.

The paddock in

CANDY TROPHY: NELSON AND JACQUES... OF COURSE

The pressmen on the jury for the Candy-sponsored "clean driving" trophy seem to have given up any original ideas in this rather curious competition. They chose the winners of the German and Austrian GPs, although their choice of second man in each case wasn't exactly in accordance with the race results.
The current leader is Nelson Piquet (122 points), ahead of Laffite, Reutemann and Villeneuve. We still await a definition of "clean" driving...

TAX CONCESSIONS FOR THE O-RING?

Beset by difficulties which include falling crowds, much-devalued local currency, heavy maintenance expenses and a crushing 47 per cent government levy on gate monies, the management of the Osterreichring has offered FOCA boss Bernie Ecclestone complete financial control of the Austrian GP.
Ecclestone, who claims that the circuit has failed to observe the terms of contracts in the past, has asked for time to consider the offer.
"I don't think we could go ahead unless we had an agreement from the government over the taxes," he said.

DORIAN GRAY DISCO SPECTACLE

With no fewer than 100 people in attendance (20 of them Grand Prix drivers), the annual pre-German GP party held at the Dorian Gray discotheque in Frankfurt was its usual huge success.

ALFAS TO TRY GOODYEAR

Goodyear's expected appearance on the two works Alfas in Austria has been deferred until Zandvoort or possibly later, pending a careful study of the team's agreement with Michelin.
Local sources suggest that Goodyear's Italian division is anxious to re-establish the link, while Autodelta racing boss Carlo Chiti is ready to try anything in order to retrieve the level of competitiveness which the cars demonstrated at the end of last season.

A SONG IN THE AIR

Bjorn Elevus, one of the "Bs" in ABBA, was a welcome visitor to Hockenheim, where he was rooting for fellow-Swede and musical collaborator Slim Borgudd.
It was largely thanks to the help of the popular singing group that Borgudd - a one-time session drummer with the band - was able to move into the ATS team, replacing Jan Lammers, at Imola.
We look forward to seeing if the FI involvement inspires ABBA to compose an appropriate song. Three years ago, Georges Harrison dedicated a number entitled "Faster" to his friends among the FI drivers.

WHO GOES WHERE: IT'S THE SILLY SEASON

The Austrian Grand Prix invariably marks the start of those splendid rumours which the world of Formula 1 loves so much. Rich teams (or, more precisely, their sponsors) start to court fresh talent, discontented drivers make discreet enquiries... yet at this stage of the plotting, hardly a journalist can say with certainty what's happening.
Knowing this will not, however, deter us from throwing in our bit of hearsay. The only sure thing (in a world where contracts rarely count for much, however) appears to be the composition of the Ferrari and Renault teams for 1982. Villeneuve and Pironi will stay at Maranello, Prost and Arnoux at Viry-Châtillon. The French team, however, has yet to settle exact terms, and we suspect that Prost will be requiring assurances of better conditions for himself in terms both of status and cash.
Although Frank Williams has announced that Alan Jones will be with him for a fifth year, other teams doubt that the contract has yet been signed. Could this mean that Alan is still talking elsewhere?
It also seems that Nelson Piquet is in demand, with an offer from McLaren (read Marlboro) proving to be a sore temptation. In the (unlikely) event that the Brazilian should leave Brabham, that would leave an opening for Reutemann, who is expected to be replaced at Williams by Cheever as a result of the young American's connections with the Ojjeh family (TAG).
While Jacques Laffite is a permanent fixture at Ligier, there is no such certainty about the position of Tambay. It might suit Laffite much better to have a genuine number 2 driver, and Jacques caries a lot of weight...
It may be neccessary for Alfa Romeo to find a replacement for Mario Andretti, who has already announced that he will be retiring altogether from F1 unless Alfa can produce a much more competitive car for him.
The drivers currently in danger of relegation look like being Italians De Cesaris, Stohr and Gabbiani, all of whom have been disappointing one way or another.

GOLDEN VOTES FOR JACQUES

The journalists on the jury for the Walter Wolf "fighting spirit" trophy chose Alan Jones at Hockenheim and Jacques Laffite at Osterreichring.
It now looks like a straight fight to the finish (with a collection of gold coins for the winner), with Laffite in a slight lead as the competition goes into the last four GPs of the season.

ANDREA DOES IT AGAIN

How many accidents has Andrea de Cesaris had in his McLaren this year? One estimate suggested as many as sixteen... and when the 22 year old Italian went bouncing over an Austrian ploughed field on Saturday, that was one more to add to the total.
Exactly how long the shunts will be allowed to continue is not known, but a team representative admitted that repairing the damage *"has absorbed all the capacity we would like to have reserved for research and development."*
It took 120 man-hours to fix the Saturday damage, but after working until 2 o'clock on race morning, Andrea's mechanics were delighted to see him bring his MP4 safely home in an incident-free 8th place.

GARAGE SPACE AT HOCKENHEIM

The pit area at Hockenheim has never given cause for complaint, but this year the German circuit

excelled itself. At the cost of a quarter of a million pounds, the owners had installed fabulous new garages with individual roll-up doors on both the pit and paddock side.
Thus Hockenheim has gone one better than Imola... and about one hundred better than the appalling Zolder.

THE MISSING FITTIPALDIS

Absent from the Austrian GP were the two entries from the troubled Fittipaldi team. Citing "force majeure" (believed to be a shortage of engines), it is understood that the team will return - possibly with one car for Keke Rosberg - at Zandvoort.

"DUCA" TO JOIN ALFA ROMEO

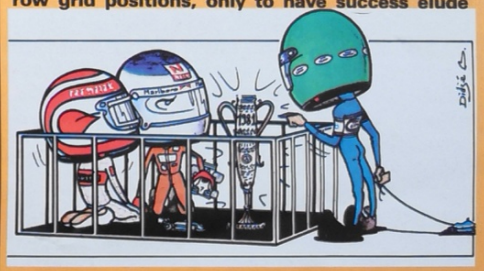
Fired without warning by Guy Ligier only a couple of days after the British GP, Gérard Ducarouge was looking understandably de-

pressed when he turned up in "civvies" at Hockenheim. A fortnight later at the Osterreichring, however, he was looking much happier as a result of receiving three challenging invitations, all from Italy.
The three were from Alfa Romeo, Ferrari and Osella, and there was every sign when we left the circuit that the one he would accept was from Alfa. That morning, the French engineer had announced that he would be acting as a consultant with Alfa for the remainder of the season, no doubt as a preliminary role before taking over development responsibilities for the turbocar which is already testing at Balocco.
It is not known how Alfa's racing boss Carlo Chiti reacted to the 20-page document submitted to him by Ducarouge in Austria containing the latter's views "on the most efficient running of an F1 team". We suspect that Chiti will defer any decision on Ducarouge's long term engagement until he's had a chance to study it in more detail.

LAUDA UNDECIDED

Taking over his regular role as a TV commentator (and interviewing Jacques Laffite in English for the Austrian audience!) Niki Lauda had taken a couple of days away from his airline to earn a few schillings at the Osterreichring.
With talk in local papers of almost £ 400,000 owing in back taxes, Lauda is obviously still tempted by the huge sums being offered by two or three different teams for him to return to racing. So far, however, the twice former champion refuses to commit himself *"until I find that I am 100 per cent committed to racing again"*.

With the German and Austrian GPs behind them, both Nelson Piquet and Jacques Laffite have made up valuable ground on Carlos Reutemann's world championship lead. Nevertheless, Carlos goes to Holland with a six point advantage over Piquet.
The Brazilian's fight back had not been entirely unexpected, for his Brabham has been showing better form in recent races. Nevertheless, it was curious irony that Nelson should have won at Hockenheim, a race which he started from a grid position that was much further back than he might have wished. By an equally strange coincidence, Jacques Laffite won at Hockenheim last year under very similar circumstances, taking advantage of the misfortunes of others to come through and lead in the last few laps.
Laffite's fine showing in the two races, while perhaps less predictable than Piquet's, has been most encouraging for his team. Although his luck was in at Hockenheim, at the Osterreichring it was a most convincing performance by the senior French driver, for with the excption of Prost he was able to take on, and beat, everyone, notably Arnoux, Piquet, Jones, Reutemann and Watson, *ie* virtually every one of the drivers who have played starring roles this year.
So far this season, Talbot stands out among the four major "grandee" constructors as the most impressive. Major success continues to elude Renault, whose racing men are presently going through a bitter and frustrating phase: their cars have three times consecutively started from front row grid positions, only to have success elude



them on each occasion. One can only imagine the emotions experienced by Gérard Larrousse and his drivers as the cup of victory is dashed from their lips just when it seems to be at hand.
There are now four drivers left in the running for the '81 title, with four rounds left to go. Among the factors which could affect the outcome one cannot overlook Renault, whose drivers are in just the right position to steal points from Reutemann, Piquet, Laffite and Jones. Tyres could play an equally important part, for any slip-ups on the part of Goodyear would play into Laffite's hands, while the opposite would be the case in the event of Michelin falling behind. It already looks as though the matter will stay in suspense all the way to the final round at Las Vegas. Meanwhile, place your bets!

Eric BHAT

TALBOT AND LIGIER CELEBRATE

The victory dinner on Sunday night, enlivened as ever by Laffite himself (photo Willy Richard)

Jacques Laffite's win in the Austrian Grand Prix dispelled any doubts about the Talbot-Ligier team. It hasn't been an easy year for the Frenchmen from Vichy, but in the last few races, their cars have steadily crept up the starting grids. Furthermore, Laffite has become a fairly regular visitor to the rostrum, if not to the top step. At the beginning of the year, the team was back at square one. It had been renamed Talbot-Ligier, and Matra V12 engines were to be used again instead of Cosworth's DFV. Then came Jean-Pierre Jabouille's problems, followed ultimately by his retirement, and then Gerard Ducarouge's departure and the subsequent restructuring of the team hierarchy. Ligier was certainly attracting attention, but not for the right reasons. But all that changed at Osterrechring. Obviously the Ligier team had worked hard for its revenge, and on Sunday night, the team members took time off to celebrate their return to the winner's circle. They deserved it.

by Eric BHAT

The executive jet carrying the Talbot-Ligier team rushed back from Graz to Paris at 425 mph. The sky was pale blue above them, and at 30,000 feet, the clouds drifted past with monotonous but hypnotically restful regularity. The party was over. The elation of winning was wearing off, but the sastisfaction remained.

Inside the plane's cabin, the eleven passengers still suffered fuzzy heads from the previous evenings festivities. But Guy Ligier was in top form, exuding happiness. His normally bad-tempered looking face was relaxed, and relieved. *"Yesterday's win is like a breath of fresh air for me. The last six months have been tough. I am responsible to Talbot, the cars have to win. I need them to win, but they haven't been competitive of late. It's been a real sweat."* He obviously felt that Talbot were beginning to be impatient. *"But now, at least, we've proved that we can do it."* he added.

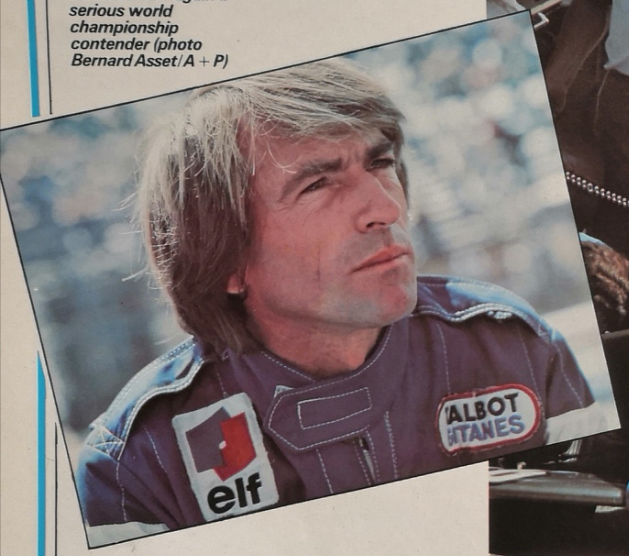
Turning to Jean-Pierre Jabouille who was day-dreaming in the seat next to him, Guy brought him back to the present with, *"hey Jean-Pierre! I was watching you last night. You were laughing.*

Band-leader Jacques Laffite, drum-major Guy Ligier and cymbal player Patrick Tambay join in the welcome for the Ligier team on Thursday night at Obdach, 10 miles from Osterreichring. (photos Bernard Asset/A + P)

Jean-Pierre Jabouille and Jacques Laffite shared in the Austrian win, more so perhaps than if Jabouille had been driving (photo Bernard Asset/A + P)

Laffite on the rostrum after his win. Skirts are still important in Formula One (Eric Vargiolu/DPPI)

Laffite is now again a serious world championship contender (photo Bernard Asset/A + P)



In fact the tears were running down your face when Jacques was playing the fool. Ah, it's good to have days like that isn't it?" Guy chuckled warmly. *"I'm sure you're happy with life, aren't you?"* Jean-Pierre smiled. *"Yes, I'm not sorry about the past."*

But the previous evening, when the team had returned to the hotel, an embarassing incident had taken place. A young holidaying Frenchman had caught sight of him. Jean-Pierre Jabouille! The young fellow searched for his autograph book and asked Jean-Pierre the unfortunate question, *"which number was your car?"* A shadow crossed his face and Jean-Pierre hesitated for a moment before quietly replying, *"it was number 25."*

Only a few weeks ago, Jabouille had made the move from driving on one side of the armco barrier to his pit-based job on the other. A few hours before the incident outside the hotel, Jean-Pierre had had his first success as an engineer, almost compensation for his retirement. But he felt none of the winner's glory, and appeared unaffected by the elation of success. *"I don't think I react to racing the same as other people. They get very disappointed when they lose, and overjoyed when they win. My own temperament leaves me unaffected whether we win or lose."*

But once he'd received full accolade for his victory, Jacques Laffite was quick to recognise his brother-in-law's part in his win. *"He's the guy who sets up the car and choses which tyres to run on. But for him, I'm sure I wouldn't have won."* And after a quick wink to his partner, he added, *"but I knew that before. That's why I was so keen for him to join the team."*

Guy Ligier echoed his words: *"Jean-Pierre has meant a great deal to us."* One can imagine that his talents have worked on two fronts. First of all, there's the progress made by the Ligier JS 17 during the last few races. Has Jabouille come up with some demon tweeks? *"No, that sort of thing doesn't exist in Formula One,"* replied the man himself, *"just as there is no such person as a Superman driver. Obviously we've developed the car, otherwise it would never have set fourth fastest time in practice, and Jacques wouldn't have won the race. But overall, you have to understand what is wrong with the car, and solve the problems in a logical manner."* In short, he sums it up thus: *"progress for us has meant a number of things."* Not a great revelation, but then no one is likely to give away their secrets in Formula One which is so competitive.

Jabouille's second talent is in the choice of tyres. *"I have complete confidence in Jean-Pierre,"* confirms Laffite. *"He's the man who choses the tyres."* Jabouille's ideal solution was a mixture between front and rear: soft 01s on the front, and 501 TRX compound tyres on the back. It seemed to be the best combination on the track, because of the first six drivers to finish, only Jacques was satisfied with his road-holding from start to finish.

At first glance, it might have been a surprising win, because Ligier's JS17 wasn't exactly the favourite to win. Up until then, its best performance was at Jarama, which is a very different circuit to Osterreichring. But then things often turn out differently to the way one expects them.

The Talbot team's weekend started out on a relaxed note. As usual, they'd booked in to their regular hotel in the little village of Obdach. *"We've been coming here since we raced sports cars in the '70s,"* explained one of the team's longstanding mechanics. *"We're part of the family here."* Ligier himself is no less enthusiastic about Austria: *"believe it or not, as far I'm concerned, this is the best weekend of the year. Our little hotel is more friendly and intimate than any other in the whole world."*

They're so well known in the village that the local band turned up to greet them, playing in front of the hotel. Guy Ligier, Patrick Tambay and Jacques Laffite went out to join them. Ligier took over the big drum and donned some head-gear to give some authenticity to his performance. He was almost in time with the music, although an extra thump or two after everyone had finished revealed that he hadn't been around for rehearsals. Jacques Laffite arrived a few moments later and took over the conductor's baton, much to the detriment of the woodwind section whose warbled notes and trembling shoulders indicated that they were laughing more than they were blowing.

It was a pleasant little interlude before the serious business of the weekend began, but it meant that the Ligier team started off on the right footing.

Two days later, on Saturday evening, the team began to be opitmistic about the race. The team members couldn't be certain of victory: there were still two Renaults and a Ferrari in front of them on the grid, but they were hopeful. In the morning's unofficial session, Laffite had set a time of 1'35"5 on race settings, just two tenths of a second slower than Arnoux's Renault. In the afternoon, Laffite confirmed the morning's promise with fourth fastest time, the best time set with a normally aspirated engine.

"Whatever the mathematical odds against me being world champion this year, I still believe it's possible. Everything's always possible," declared Jacques after the end of practice. Almost certainly, he would be involved in the leading bunch today. Should the Renaults fail, he would be there, ready and waiting, to inherit the lead. The Ligier may not have been the fastest car on the track, but it was certainly reliable which was why Jacques held third place in the world championship.

Some of the world's journalists were just as aware of the facts. A small 'book' amongst them on Sunday morning made Jacques favourite to win. The man himself was confident. He may not have set fastest lap during Sunday's warm-up because of a buckled brake disc, but it was no cause for alarm. Teammate Patrick Tambay, on the other hand, wasn't so happy. His engine broke, and its replacement broke in the race.

What happened in the race is already printed elsewhere on these pages: the Renaults' problems, Jacques catching Arnoux, and then taking the chequered flag to the delight of his team. Six laps from the end, realising that Jacques was about to re-establish himself as a world championship contender, Jean-Pierre Jabouille crossed the pit lane for a quick word with Guy Ligier. *"I think I'm going to have to delay having the operation on my legs."* Clearly, his function at races is of increasing importance.

"Jacques drove a superb race, commented Guy Ligier, *"maybe the best of his entire Formula One career."* As an afterthought, Ligier added with a wicked grin, *"hey, perhaps you journalists are going to have to revise your theories on turbos. A turbo-engined car won at Monaco, and not here. Now how do you explain that?"* □

EXTRA, EXTRA

PROST MAKES THE GRADE

By rights, Alain Prost should have been beside himself with joy after the German GP. In fact, following a series of those vexations which tend to be strewn along the path of life, he felt thwarted. For second place, regardless of how hard-fought it might be, implies that one is the leader ot the beaten. And that is no reward when one's objectives have been set no lower than an outright win.
Alain Prost was beaten at Hockenheim. After a race as good as his, to come second was no reward. Nevertheless, the German GP marked a significant point in his career, for at Hockenheim he showed that he has the ability to be more than just good.

Because of the exceptional circumstances at Dijon, Prost's French GP victory did not meet with, shall we say, universal acclaim. Two weeks later, at Silverstone, he was way ahead of the field when forced to retire: he would be the first to admit, however, that on that occasion he had far and away the quickest car. It was not, therefore, until the German race that he was able to prove that he has made the grade. It was at Hockenheim that the 26 year old Frenchman, for the first time in his life, found himself battling for the lead of a Grand Prix against an established star (Alan Jones) who, on this occasion, was driving a visibly faster car. Obviously unimpressed, Prost responded heartily, trading blow for blow with his rival and staying ahead with a mastery that belied the temporary inferiority of his car's performance.
"I knew that I wasn't as quick as he was, but I was rather enjoying holding him up," said Prost of the scrap. *"I must give Alan credit, though: he was attacking at every possible opportunity, but every move he made was fair. It's a pleasure to be racing together like that. You know you're safe. It's real racing."* Alan Jones was equally complimentary about the behaviour of Prost, adding that he was looking forward to a re-match.
With Jones so much quicker, the inevitable took place: following a serious misunderstanding between the two Renault drivers, Alan was able to find a way past them both. It happened when Arnoux, who had lost a lap in the pits, was getting ready to be lapped: in leaving a gap for Prost, he caught his countryman by surprise. Never one to miss an opportunity, Jones was through in a flash, going *between* the two Renaults at the Sachs curve.
It was under similar circumstances, while lapping Watson and Jarier, that Prost had to let Piquet overtake. It was only Jones's fuel pick-up problem that enabled Prost (and ten others) to get ahead again. His second place, however, was not good enough for him.
"At the time, I was very disappointed. Racing under circumstances like that takes up a lot of nervous energy, because you have to watch out all the time for people trying to pass, especially when they're as fast as Jones or Piquet. When you get pushed out of the lead into 3rd place, that makes it even worse. That's life though... I still think I had a good race."
Caught between emotions, Alain reflected that the duel with Jones - gripping though it had been - should never in fact have taken place. His turbo-Renault had never been threatened for pole position, and by rights should have been more than quick enough to have won with equal facility. *"The car was fine at the beginning: handling, engine, everything, despite the slight advantage which the Goodyear cars had in the tyre department. But my rev limiter went haywire after five or six laps. I could only wind it up to 10,400 rpm instead of 10,800. It was a big handicap on top speed, as you could see. It got even worse at the end... I was down to only 10,200 rpm."*
As a result, the Renault team - everyone's favourites to win beforehand - had victory snatched from their grasp, for apart from Prost's troubles Arnoux was also in trouble. A minor bump with Piquet on the first lap caused a puncture which destroyed his skirts and sent him into the pits for a rear tyre.
To sum up, however, the race was not an entirely lost opportunity. At least it enabled Prost to demonstrate his ability as a driver. Had he won by the expected huge margin, everyone would have given the benefit of the doubt to his turbocharged engine. One is tempted to wonder if Alain would have preferred that as an outcome...

E.B.

HOCKENHEIM

EXORCISING THE DEVIL

On the Wednesday morning after the German Grand Prix, Williams engineers Patrick Head and Frank Dernie arrived bright and early at Silverstone. Fresh and relaxed, they swopped jokes as the mechanics prepared three cars for Alan Jones and Carlos Reutemann, both of whom had been summoned to the Midlands circuit for this important test session.
Only three days earlier, the same engineers had sat grimly together with Frank Williams, their boss, in a Rover courtesy car as they waited to leave Hockenheim after that afternoon's disastrous race. The failure of a valve spring on Carlos's car, and his subsequent retirement, could be described as an unlucky break. But the fuel feed trouble which had dropped Alan Jones out of the lead to an ignomious 11th place had been unforgiveable, for an identical problem had cost Jones victory at Monaco, and had cost Reutemann points at Dijon.
There is no question that Jones had driven one of his best-ever races at Hockenheim. In effect, as a sort of reward, he had been given the lead by the two drivers of the Régie Renault in a gross miscalculation on the part of Alain Prost. Then the fuel feed trouble interceded, and the reigning champion's bid to regain the title had been ruined by a stuttering, maddening misfire.
Arriving today behind the wheel of an interesting and still-secret new British Leyland car, Alan Jones himself was relaxed but eager to get on with the day's business. In the pits, the mechanics were taking pains to duplicate exactly the same conditions which had prevailed during those fateful final laps at Hockenheim. Apart from cleaning the dead flies off the bodywork, the car was exactly as it had finished in Germany, and even the fuel was being heated to 35 degrees C, the prevailing temperature in Germany the previous Sunday.
It was a long and time-consuming process. Jones would do a few laps at a time... and sure enough, the misfire appeared. Parts of the fuel system would be switched from one car to another. And the problem would be reproduced. *"At least we're getting somewhere,"* said Head laconically. *"It would be much more worrying if we hadn't been able to reproduce the problem at all."*
By the end of the day, now with Frank Williams in attendance, the team looked happy. The problem that had cost their drivers so dearly at Monaco, Dijon and Hockenheim had been isolated. In two last laps, Jones had gleefully flung the FW07 around Silverstone to celebrate a successful, if overdue, conclusion of the car's woes.
Frank Williams, on the way to watch at the chicane, had just missed Alan's two "hot" laps. *"Pity"*, said Jones, as the two men talked together: *"the car feels really good since we made the aerodynamic changes. I wish we had been able to get the car performing as well as this for the British GP. I'm sure it would have been good enough for the front row of the grid... and I would never have been behind Villeneuve when he made his big mistake."*
On the way home, Alan was in two minds. Glad that the Hockenheim problem had been solved. But reflective that his team had missed opportunities which could have given him 18 points from the two preceding races instead of a blank score card. Being Alan Jones, however, it wasn't something that he allowed to preoccupy him. First on the agenda was a beer in his local pub. And then it would be Austria... and a chance to make up for lost time.

M.G.D.

Hockenheim statistics

GERMAN GRAND PRIX

Date : August 2, 1981
Circuit length : 4.218 miles
Race distance : 45 laps, 189.831 miles
Conditions : hot and overcast
Attendance : 100,000 spectators

THE RECORD

(last five races)

1976 : Hunt (Mc Laren M23)
1977 : Lauda (Ferrari 312 T2)
1978 : Andretti (Lotus 79)
1979 : Jones (Williams FW07)
1980 : Laffite (Ligier JS11/15)

STARTING GRID

ARNOUX
Renault RE30
1'47"96

JONES
Williams FW07
1'48"49

PIQUET
Brabham BT49
1'49"03

VILLENEUVE
Ferrari 126C
1'49"44

DE CESARIS
Marlboro MP4
1'49"58

ANDRETTI
Alfa Romeo 179
1'50"64

DE ANGELIS
Lotus 87
1'50"74

REBAQUE
Brabham BT49
1'51"17

CHEEVER
Tyrrell 011
1'52"19

BORGUDD
ATS D6
1'52"54

SURER
Theodore TY02
1'52"85

STOHR
Arrows A3
1'53"19

PROST
Renault RE30
1'47"50

REUTEMANN
Williams FW07/B
1'48"43

PIRONI
Ferrari 126C
1'49"00

LAFFITE
Talbot-Ligier JS17
1'49"28

WATSON
Marlboro MP4
1'49"52

TAMBAY
Talbot Ligier JS17
1'50"00

PATRESE
Arrows A3
1'50"65

MANSELL
Lotus 87
1'50"86

JARIER
Osella FA1/B
1'52"19

GIACOMELLI
Alfa Romeo 179
1'52"21

DALY
March 811
1'52"65

SALAZAR
Ensign N180B
1'53"16

Non-qualified :

ROSBERG (Fittipaldi F8/C) 1'53"28
HENTON (Toleman) 1'53"31
GABBIANI (Osella FA1) 1'53"39
WARWICK (Toleman) 1'53"58
ALBORETO (Tyrrell 010) 1'53"69
SERRA (Fittipaldi F8/C)

UNOFFICIAL PRACTICE TIMES

SUNDAY MORNING		FRIDAY MORNING		SATURDAY MORNING	
JONES	1'48"82	JONES	1'49"34	JONES	1'51"76
REUTEMANN	1'49"44	REUTEMANN	1'49"64	REUTEMANN	1'52"40
PIQUET	1'49"74	DE CESARIS	1'51"42	PIQUET	1'52"84
PATRESE	1'49"89	PATRESE	1'51"78	MANSELL	1'53"58
WATSON	1'50"25	LAFFITE	1'52"42	ARNOUX	1'53"82
REBAQUE	1'50"47	DE ANGELIS	1'52"68	PIRONI	1'53"99
PROST	1'50"96	ARNOUX	1'52"69	PROST	1'54"15
PIRONI	1'51"40	CHEEVER	1'52"96	DE ANGELIS	1'54"57
MANSELL	1'51"51	PIQUET	1'53"07	LAFFITE	1'54"61
ARNOUX	1'51"70	MANSELL	1'53"09	REBAQUE	1'54"76
VILLENEUVE	1'51"72	WATSON	1'53"23	WATSON	1'54"81
LAFFITE	1'51"83	ANDRETTI	1'53"42	DE CESARIS	1'54"97
DE CESARIS	1'52"06	GIACOMELLI	1'53"60	VILLENEUVE	1'55"21
BORGUDD	1'52"17	DALY	1'53"86	CHEEVER	1'55"27
CHEEVER	1'52"25	PIRONI	1'53"93	PATRESE	1'55"38
DE ANGELIS	1'52"33	PROST	1'54"06	TAMBAY	1'55"56
TAMBAY	1'52"34	BORGUDD	1'54"14	ANDRETTI	1'55"58
ANDRETTI	1'53"38	VILLENEUVE	1'54"45	GIACOMELLI	1'55"80
GIACOMELLI	1'53"97	ROSBERG	1'54"88	DALY	1'56"79
SURER	1'54"03	REBAQUE	1'55"27	STOHR	1'57"61
HENTON	1'54"38	SALAZAR	1'55"80	BORGUDD	1'57"75
ROSBERG	1'54"77	TAMBAY	1'56"06	SURER	1'57"81
JARIER	1'54"80	SERRA	1'56"15	JARIER	1'58"96
ALBORETO	1'54"81	ALBORETO	1'56"53	SALAZAR	1'59"05
STOHR	1'54"85	WARWICK	1'57"26		
SALAZAR	1'55"71	STOHR	1'57"67		
GABBIANI	1'56"28	SURER	1'57"82		
SERRA	1'57"08	HENTON	2'06"70		
WARWICK	1'58"20	GABBIANI	2'09"39		
DALY	2'07"55	JARIER	2'15"40		

THEIR FASTEST RACE LAPS

	Time
Jones	1'52"42
Piquet	1'52"60
Prost	1'53"51
Reutemann	1'53"69
Rebaque	1'54"47
Salazar	1'54"61
Patrese	1'54"84
Laffite	1'54"96
Cheever	1'55"25
Tambay	1'55"31
Mansell	1'55"55
Watson	1'55"56
Giacomelli	1'55"56
De Cesaris	1'55"82
De Angelis	1'55"98
Daly	1'56"15
Arnoux	1'56"20
Andretti	1'56"21
Villeneuve	1'56"26
Jarier	1'56"61
Stohr	1'56"70
Borgudd	1'56"74
Surer	1'56"82
Pironi	2'01"67

OFFICIAL PRACTICE TIMES

	1st session	2cnd session
PROST	1'48"09	**1'47"50**
ARNOUX	**1'47"96**	1'48"08
REUTEMANN	1'50"20	**1'48"43**
JONES	**1'48"49**	1'49"38
PIRONI	**1'49"00**	1'49"97
PIQUET	**1'49"03**	1'49"26
LAFFITE	1'50"27	**1'49"28**
VILLENEUVE	**1'49"44**	1'50"24
WATSON	**1'49"52**	1'50"36
DE CESARIS	1'50"07	**1'49"58**
TAMBAY	**1'50"00**	1'50"61
ANDRETTI	**1'50"64**	1'50"73
PATRESE	1'50"68	**1'50"65**
DE ANGELIS	1'52"36	**1'50"74**
MANSELL	1'51"98	**1'50"86**
REBAQUE	**1'51"17**	1'51"49
JARIER	**1'52"19**	1'52"95
CHEEVER	**1'52"19**	1'52"44
GIACOMELLI	**1'52"21**	1'52"59
BORGUDD	**1'52"54**	1'54"14
DALY	1'55"80	**1'52"65**
SURER	**1'52"85**	1'53"50
SALAZAR	1'55"58	**1'53"16**
STOHR	**1'53"19**	1'53"33
ROSBERG	**1'53"28**	1'53"38
HENTON	1'53"31	**1'54"77**
GABBIANI	1'55"53	**1'53"39**
WARWICK	1'54"59	**1'53"58**
ALBORETO	**1'53"69**	1'54"19
SERRA	1'55"22	**1'54"89**

RESULTS

1. PIQUET	Brabham BT49	45 laps, 189.831 miles in 1h25'55"60, 132.534 mph
2. PROST	Renault RE30	11"5 behind
3. LAFFITE	Talbot Ligier JS17	1'04"6 behind
4. REBAQUE	Brabham BT49	1'39"6 behind
5. CHEEVER	Tyrrell 010	one lap behind
6. WATSON	Marlboro MP4	one lap behind
7. DE ANGELIS	Lotus 87	one lap behind
8. JARIER	Osella FA1/B	one lap behind
9. ANDRETTI	Alfa Romeo 179	one lap behind
10. VILLENEUVE	Ferrari 126C	one lap behind
11. JONES	Williams FW07	one lap behind
12. STOHR	Arrows A3	one lap behind
13. ARNOUX	Renault RE30	one lap behind
14. SURER	Theodore TY 02	two laps behind
15. GIACOMELLI	Alfa Romeo 179	two laps behind

Fastest lap : JONES (Williams FW07), 1'52"42, 135.068 mph.

Postcard from Hockenheim

In a drivers' tennis tournament on the day before the race, Jacques Laffite found himself on the wrong end of Nigel Mansell's racket

Flowers at the East curve commemorate the death of Patrick Depailler at this spot one year ago

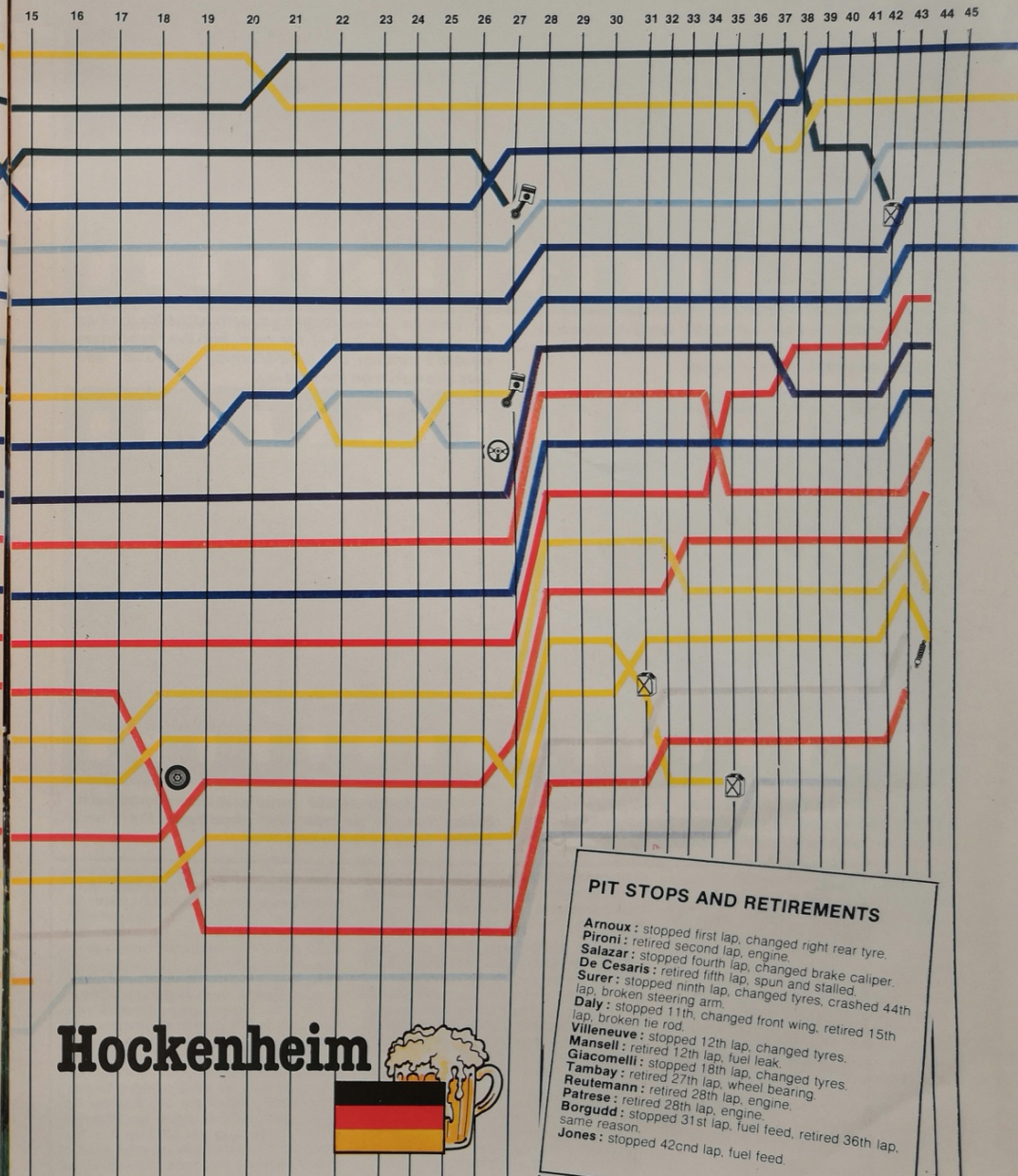
Pretty faces, nice legs: we liked both...

PM's son Mark Thatcher found a Super-Vee drive, but crashed heavily in practice

Renault girls. On the left '79 European kart champion Cathy Muller, who was having her first race in a Renault 5 Turbo at Hockenheim. On the right Renault's press attachee and former driver Marie-Claude Beaumont. Above: this discussion may have been about something other than racing

Manfred Winkelhock's impressive Zakspeed turbo "Capri" was a Group 5 winner

ap by lap - Giro per giro - Runde um Runde - Tour par tour - Vuelta a vuelta - Ronde



Hockenheim

PIT STOPS AND RETIREMENTS

Arnoux : stopped first lap, changed right rear tyre.
Pironi : retired second lap, engine.
Salazar : stopped fourth lap, changed brake caliper.
De Cesaris : retired fifth lap, spun and stalled.
Surer : stopped ninth lap, changed tyres, crashed 44th lap, broken steering arm.
Daly : stopped 11th, changed front wing, retired 15th lap, broken tie rod.
Villeneuve : stopped 12th lap, changed tyres.
Mansell : retired 12th lap, fuel leak.
Giacomelli : stopped 18th lap, changed tyres.
Tambay : retired 27th lap, wheel bearing.
Reutemann : retired 28th lap, engine.
Patrese : retired 28th lap, engine.
Borgudd : stopped 31st lap, fuel feed, retired 36th lap, same reason.
Jones : stopped 42cnd lap, fuel feed.

Giro per giro - Runde um Runde - Tour par tour - Vuelta a vuelta - Ronde na ronde - L

HOCKENHEIM

1 - Prost grabs the lead at the start, while Arnoux has to give best to the two Williams. Laffite makes a good start, temporarily in front of Piquet.

2 - Prost and Jones fought a superb battle for the lead during the first half of the race, but the Frenchman couldn't contain the hard-charging Australian, and was overtaken on the 21st lap.

3 - Piquet and Reutemann disputed third place early on, but the Argentine's engine broke. Piquet then caught and overtook Prost on the 37th lap.

4 - When Jones struck trouble, it was Piquet who came through to take first place from Prost and Laffite. They were the first three.

PRACTICE

The Renaults totally dominated both official sessions, while the Williams took the upper hand in the unofficial sessions. But the grid was decided when first of all René Arnoux set the fastest time in the first session, and then Prost reversed the situation, improving by six tenths of a second to bump his teammate off pole position before his engine broke. The Williams had made considerable progress since Silverstone and occupied the second row, Reutemann quicker than Jones.

The Ferraris were a little disappointing. It was thought that Hockenheim would suit them and that they'd be just behind the Renaults.

Instead, Pironi and Villeneuve had to be content with fifth and eighth quickest times respectively. Piquet wasn't suffering too much from his Silverstone accident and set sixth fastest time, in front of Laffite whose Ligier-Matra was making steady progress up the grid.

RACE

A question mark hung over two drivers before the race. Both Prost and Reutemann had engine trouble during the race-day warm-up. Prost's turbos had to be changed, while the Williams men began to change Reutemann's engine but the Argentine used the spare car instead.

When the lights went to green, Prost immediately took the lead, but Arnoux was pushed back to fourth by the two Williams, and then René and Piquet touched, which was enough to puncture the Renault's right rear tyre.

So Prost led the opening laps, but he didn't pull away as he did at Silverstone. Both Williams and Piquet's Brabham remained close behind. Pironi retired on the second lap when his engine stopped. Jones overtook Reutemann and began to challenge Prost. Their battle lasted for nearly half the race, for the Renault's rev limiter was set 600 revs too low, and Alain didn't have his usual turbo advantage in a straight line.

At half distance, Jones overtook Prost in a magnificient demonstration of race-craft, and Piquet also overtook the Renault a few laps later. Reutemann had retired with a broken engine. Jones began to draw away, and just when it looked as though nothing could stop him from winning, his engine began to misfire. Piquet and Prost caught him up again and overtook, while the Williams driver made a quick pit stop but the mechanics failed to cure his problem. So Piquet, despite two worrying problems including a broken skirt, won the race from Prost, while Laffite was a distant third. □

ZELTWEG

1 - Villeneuve makes a tremendous start, overtaking the two Renaults, but Laffite fails to do the same thing.

2 - During the opening laps, the Renaults pull out a huge lead of 18 seconds, Prost leading Arnoux.

3 - While the Renaults pull away, Pironi holds up the rest. They are led temporarily by Piquet but Laffite will soon repass him.

4 - Prost has retired and Laffite catches Arnoux. For five laps, the two cars battle for the lead, until Laffite overtakes to take the chequered flag.

PRACTICE

The battle for pole position was an all-Renault affair. No one else got a look-in. René Arnoux won round one in front of Alain Prost in the first session, but both improved in the second with Arnoux coming out on top and claiming his third consecutive pole position at Österreichring.

Gilles Villeneuve set second fastest time in practice, but it was scarcely indicative of his performance in the race. The Ferraris are obviously slow on full tanks, and the engines aren't reliable. Jacques Laffite was again in with a good chance, setting fourth fastest time and the first of the non-turbos. He preceded Reutemann, Jones and Piquet.

Jean-Pierre Jarier used a set of Michelin qualifiers to great effect, setting a superb time in the unwieldy Osella to put it on the seventh row of the grid. Eddie Cheever described Tyrrell's new 011 as "undriveable" and tried to qualify and old 010 but in vain. He just missed getting onto the grid, as did Warwick and Henton, while Gabbiani was uncompetitive.

RACE

Gilles Villeneuve made another of his superb starts and led the first lap, but ran wide into the Hella Licht chicane's escape road at the start of the second lap, allowing the two Renaults into the lead. Prost and Arnoux quickly drew away from the rest who were held up by Pironi's Ferrari.

Laffite and Piquet both took turns at trying to overtake the red car, but it was Laffite who got by first on the ninth lap, soon to be followed by Piquet and then the two Williams of Jones and Reutemann. At first the Renaults continued to pull away from the rest, until their lead was up to 18 seconds. Prost was shadowed by Arnoux, but then Laffite began to catch the two yellow cars at the rate of a second a lap.

At half distance, Prost's front left rocker arm broke and he retired. That left Arnoux in the lead, but Laffite was closing. On the 30th lap, the two French cars were running nose to tail, and after nine laps, Laffite overtook Arnoux. The Talbot-sponsored Ligier pulled away to win from Arnoux who remained in second place, Piquet, Jones, Reutemann and Watson completing the first six at the flag. □

EXTRA, EXTRA

RENAULTS' WINGS ARE CLIPPED

After only ten of the 53 lap Austrian Grand Prix, Alain Prost and René Arnoux had an enormous 18 second lead over third man Didier Pironi. The Renaults looked as though they were going to dominate the race as they had dominated practice. A Renault - if not two - on the front row has become a common sight over the past three Grands Prix, but the same can't be said of the final results. Sure enough, the Renaults took the front row of the grid, and within those first few laps, they'd made it look as though this time they might take the chequered flag too. But their total domination of the early laps of the race was an illusion. The rest of the drivers were held up behind Pironi's Ferrari. Jacques Laffite was at the head of the five car queue waiting to overtake the ill-handling Italian car. When he managed to get by, it became clear that now the race was going to start. When Prost retired on the 27th lap, Arnoux was easy meat for the rapidly closing Laffite. Somehow the Renaults wings had been clipped.

For the last three years the Renaults have flown at Osterreichring. The ultra-fast circuit, 3000 feet above sea level, is perfectly suited to the Renaults' power, particularly as the height is to the disadvantage of normally-aspirated engines. But it wasn't until last year that Jean-Pierre Jabouille succeeded in confirming Renaults' practice potential by winning at Osterreichring.

Early on the afternoon of August 15, René Arnoux set a time that was good enough to win him pole position for the Austrian Grand Prix, his third successive pole position at the circuit. Second quickest was teammate Alain Prost, just a few hundredths of a second slower. Arnoux's recent run of bad luck hadn't dented his morale, he was as determined as ever. He wanted to win. Twice he'd been favourite to win the Austrian Grand Prix, but neither time had he done so. Would it be third time lucky? His run of bad luck had to change some time - or would it be a case of things happening in threes?

Arnoux wasn't entirely happy. The car understeered on turn-in to the fast Austrian corners. He had asked for new settings, but even these hadn't totally rid the car of its understeer. *"It was the same during the warm-up,"* said Arnoux before the race. *"But once the fuel load starts to lighten, I expect the understeer to turn progressively into oversteer..."*

As photographers lined up to snap the front row-winning Renault pair, Arnoux grinned confidently. Prost's smile wasn't quite as wide. He also had turning in trouble. *"I'm having trouble placing the car at the entry to corners,"* he explained. But his caution was no cause for alarm. The Renaults may not have been perfect, but they were surely sufficiently competitive to leave their rivals far behind. When Jacques Laffite set fourth fastest time during the second official practice session, Gerard Larrousse's men weren't worried.

But the mechanics pacing the pit lane didn't expect to see Prost's leading Renault pull off the track at the entrance to the chicane at the top ot the start/finish straight. They'd watched as Laffite had whittled away the Renaults' lead, and it seemed that Prost and Arnoux could do little about it. Once back in the pits, Prost was able to reassure his team. *"I don't think Laffite would have overtaken me if I hadn't retired,"* he told his team. *"René was there behind me, protecting my position. That's why I wasn't worried. However, the steering was very sensitive from the start."*

But the way that Laffite caught Arnoux suggests that Prost's opinion was liberally dosed with French optimism. Arnoux still had his understeer, and furthermore his brakes were fading in the double left-hander in the centre of the circuit. Laffite closed on him inexorably, and within a few laps, the Ligier had overtaken the Renault and pulled away. René's second place at the end was little reward for the Renault men. Their optimism was replaced with an equal share of disappointment. Gérard Larrousse's only answer to the Renaults' failure to maintain their practice form in the race was that something had happened to the cars. *"Our cars are certainly more competitive than their race form would suggest,"* he emphasised. *"I just don't understand how we lost a second a lap between warm-up and the race. We're going to have to examine the cars very thoroughly to find out what went wrong."*

ALAN TIRES OF GOODYEAR

Half an hour after he had brought his Williams across the line in 4th place at the Osterreichring, a sullen Alan Jones was presiding over a mini press conference outside the team's motorhome. Although the traditional foamy post-race tranquiliser was in the champion's hand, it was clear that he was far from soothed. And the object of this impromptu gathering? To condemn what Alan regards as treachery on the partt of Goodyear, the company which has been supplying his racing tyres since the French GP.

"They conned us," he announced to the astonished pressmen, most of whom would have preferred to discuss the effects of the broken rear suspension which had handicapped Alan for almost the whole race distance. *"When Goodyear decided to come back into racing, they said it would be with only two teams. Brabham and Williams. They even said that the President of the company himself had insisted on restricting their effort to just two teams!"*

In private tests at Silverstone before the French GP, the champion had been delighted to work again with the Goodyear engineers whose policy of testing as often as possible between races had helped him to win last year's title. And at Dijon, although the number 1 Williams was delayed by a pit stop, the excellent performance of Nelson Piquet's Goodyear-shod Brabham was an obvious encouragement.

Three races later, the picture is less bright - at least it is according to Alan. At Silverstone he had been upset by Goodyear's decision to add Lotus to their contracted teams. *"And by the time we came here to Austria, not only had they decided to take on Cheever's Tyrrell, but they had even brought sufficient tyres to supply Alfa Romeo as well.*

"In qualifying here, they gave me a tyre which was pretty good. I did a 1m 33.6s on it in one of the unofficial sessions. But they only had two of them! What sort of company is it that works like that? They knew that there would be a lot of catching up to do after being away since November, but all they seem to be interested in doing is signing up more teams...".

Even the Brabham team, whose tyre gamble at Hockenheim had given the American tyre company its first (lucky) 1981 victory, were non-plussed by their inability to squeeze much speed from their car in Austria. Designer Gordon Murray concentrated throughout the Saturday sessions on getting the handling of Nelson Piquet's car sorted out on full tanks, hoping to compensate for the chassis's comparative lack of speed on single "hot" laps for a grid time.

But there was not much joy for the Goodyear men in the race. Even Piquet's carefully set up Brabham - having worn its skirts much earlier in the race than anticipated - could not match the speed of the Michelin shod French cars ahead of it. And while Jones drove yet another fighting race into 4th place, handicapped by the breakage of a spring platform at the rear of the car, he never looked as competitive as he had been, for example, et Hockenheim. As for Carlos Reutemann, he had opted as usual for a hard (but "safe") Goodyear tyre, and after his moment at the chicane on the second lap, while trying desperately to hold on to 6th place, it was more the misfortunes of others than the performance of his Williams that gave him his eventual 5th place.

Asked to explain the apparent change of policy, a Goodyear representative explained that since announcing its return to Formula 1, his company had come under considerable pressure to supply tyres to other teams. *"Not just from people like Lotus and Ken Tyrrell, with whom we have had close links in the past, but also from the national Goodyear affiliates - for example the one in Italy - which not only want to make publicity from our racing involvement but which also contribute to the budget of the racing department.*

"It doesn't make sense either to take all our fitters and engineers to a Grand Prix just to supply four cars. Yes, we know that Alan Jones feels very strongly about it, but we do not agree that it is against the interests of his team for us to supply other cars as we have decided to do."

A disappointed Alan Jones remained unconvinced. *"It all sounded so good when Frank Williams first telephoned me to ask me my reactions about working with Goodyear again. They made a lot of noise about the 'American muscle' that they were going to pull. Right now, though, if I had the chance of making the decision, I would go back to Michelin."*

M.G.D.

Zeltweg statistics

AUSTRIAN GRAND PRIX

Date : August 16, 1981
Circuit length : 3.692 miles
Race distance : 195.686 miles
Conditions : hot and overcast
Attendance : 50,000 spectators

THE RECORD

1976 : WATSON (Penske Ford)
1977 : JONES (Shadow Ford)
1978 : PETERSON (Lotus Ford)
1979 : JONES (Williams Ford)
1980 : JABOUILLE (Renault Turbo)

STARTING GRID

ARNOUX
Renault RE30
1'32"01

VILLENEUVE
Ferrari 126 C
1'33"33

REUTEMANN
Williams FW07/B
1'34"53

PIQUET
Brabham BT49
1'34"87

DE ANGELIS
Lotus 87
1'35"29

MANSELL
Lotus 87
1'35"56

ANDRETTI
Alfa Romeo 179
1'36"07

REBAQUE
Brabham BT49
1'36"15

TAMBAY
Talbot Ligier JS17
1'36"23

DALY
March 811
1'37"23

BORGUDD
ATS D6
1'37"70

SURER
Theodore TY02
1'38"52

PROST
Renault RE30
1'32"32

LAFFITE
Talbot-Ligier JS17
1'34"79

JONES
Williams FW07
1'34"65

PIRONI
Ferrari 126 C
1'35"03

PATRESE
Arrows A3
1'35"44

WATSON
Marlboro MP4
1'35"97

JARIER
Osella FA 1/B
1'36"11

GIACOMELLI
Alfa Romeo 179
1'36"21

DE CESARIS
Marlboro MP4
1'36"65

SALAZAR
Ensign N180 B
1'37"63

ALBORETTO
Tyrrell 010
1'38"08

STOHR
Arrows A3
1'38"54

Non-qualified :

CHEEVER (Tyrrell 010) 1'38"58
WARWICK (Toleman) 1'38"59
HENTON (Toleman) 1'38"69
GABBIANI (Osella FA1) 1'41"19

CONSTRUCTORS CUP

1. Williams 72 pts - **2.** Brabham 43 pts - **3.** Talbot 34 pts - **4.** Renault 30 pts - **5.** Ferrari 28 pts - **6.** McLaren 22 pts - **7.** Lotus 13 pts - **8.** Arrows and Tyrrell 10 pts.

WORLD CHAMPIONSHIP

1. Reutemann 45 pts - **2.** Piquet 39 pts - **3.** Laffite 34 pts - **4.** Jones 27 pts - **5.** Villeneuve, Watson 21 pts - **7.** Prost 19 pts - **8.** Arnoux 11 pts - **9.** Patrese, Cheever 10 pts - **11.** Rebaque, De Angelis 8 pts - **13.** Pironi 7 pts - **14.** Mansell 5 pts - **15.** Surer 4 pts - **16.** Andretti 3 pts - **17.** Tambay, De Cesaris, Borgudd 1 pt.

TIMES IN UNOFFICIAL PRACTICE

FRIDAY MORNING		SATURDAY MORNING		SUNDAY MORNING	
Piquet	1'34"27	Jones	1'33"67	Piquet	1'37"06
Reutemann	1'34"35	Prost	1'34"90	Watson	1'37"20
Arnoux	1'34"57	Piquet	1'35"29	Jones	1'37"22
Jones	1'34"59	Arnoux	1'35"48	Prost	1'37"22
Laffite	1'34"61	Laffite	1'35"67	Arnoux	1'37"26
De Angelis	1'35"64	Patrese	1'35"83	Reutemann	1'37"93
Prost	1'35"82	Rebaque	1'36"18	De Angelis	1'38"42
Mansell	1'35"99	De Angelis	1'36"27	Villeneuve	1'38"65
Rebaque	1'36"41	De Cesaris	1'36"44	Mansell	1'39"08
Watson	1'36"82	Watson	1'36"72	Patrese	1'39"24
Patrese	1'37"55	Mansell	1'36"84	Pironi	1'39"42
De Cesaris	1'37"69	Borgudd	1'37"25	Rebaque	1'39"47
Villeneuve	1'37"97	Villeneuve	1'37"45	Laffite	1'39"52
Tambay	1'38"07	Salazar	1'37"47	Tambay	1'39"68
Giacomelli	1'38"09	Daly	1'37"65	Salazar	1'39"86
Pironi	1'38"11	Reutemann	1'37"67	De Cesaris	1'40"06
Daly	1'38"44	Alboreto	1'37"87	Borgudd	1'40"58
Salazar	1'38"44	Tambay	1'38"02	Alboreto	1'40"83
Cheever	1'38"53	Andretti	1'38"04	Daly	1'41"03
Andretti	1'38"83	Pironi	1'38"14	Andretti	1'41"07
Jarier	1'39"02	Giacomelli	1'38"14	Giacomelli	1'41"33
Borgudd	1'39"02	Jarier	1'38"39	Stohr	1'43"79
Alboreto	1'39"17	Surer	1'38"58	Jarier	1'45"36
Surer	1'39"78	Cheever	1'38"65	Surer	1'52"40
Stohr	1'40"95	Stohr	1'40"37		
Henton	1'41"82	Gabbiani	1'40"71		
Gabbiani	1'41"92	Warwick	1'40"76		
Warwick	1'42"02	Henton	1'41"04		

THEIR FASTEST RACE LAPS

	Time	Lap n°
Laffite	1'37"62	47
Arnoux	1'38"24	36
Piquet	1'38"00	52
Jones	1'37"66	51
Reutemann	1'38"69	29
Watson	1'38"65	42
De Angelis	1'39"37	40
De Cesaris	1'39"71	52
Pironi	1'40"66	4
Jarier	1'42"46	6
Daly	1'40"18	40
Andretti	1'41"32	8
Borgudd	1'40"88	42
Patrese	1'38"85	38
Salazar	1'40"42	41
Alboreto	1'41"32	21
Giacomelli	1'41"36	33
Rebaque	1'40"47	25
Stohr	1'42"80	18
Prost	1'38"41	4
Tambay	1'40"82	11
Mansell	1'39"36	21
Villeneuve	1'41"05	3

OFFICIAL PRACTICE TIMES

	1st session	2cnd session
Arnoux	1'32"682	**1'32"018**
Prost	1'32"978	**1'32"321**
Villeneuve	**1'33"334**	1'35"150
Laffite	1'35"002	**1'34"398**
Reutemann	**1'34"531**	1'35"633
Jones	**1'34"654**	1'34"999
Piquet	**1'34"871**	1'35"519
Pironi	1'35"346	**1'35"037**
De Angelis	**1'35"294**	1'35"858
Patrese	1'35"912	**1'35"442**
Mansell	1'36"688	**1'35"569**
Watson	1'36"007	**1'35"977**
Andretti	1'36"560	**1'36"079**
Jarier	1'38"004	**1'36"117**
Rebaque	1'36"511	**1'36"150**
Giacomelli	1'37"637	**1'36"216**
Tambay	**1'36"233**	1'36"443
De Cesaris	**1'36"657**	
Daly	1'37"777	**1'37"230**
Salazar	1'38"273	**1'37"631**
Borgudd	1'38"529	**1'37"709**
Alboreto	1'39"674	**1'38"084**
Surer	**1'38"522**	1'44"262
Stohr	1'38"616	**1'38"546**
Cheever	**1'38"583**	1'39"351
Warwick	1'40"391	**1'38"593**
Henton	1'39"987	**1'38"691**
Gabbiani	**1'41"198**	1'46"079

RESULTS

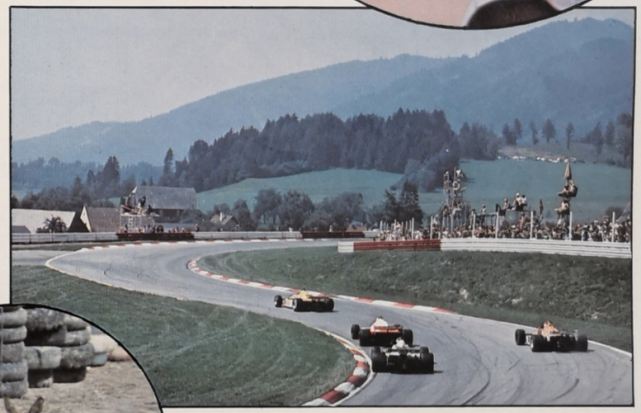
1. LAFFITE	Talbot Ligier JS17	53 laps, 195.686 miles in 1h27'36"47, 134.028 mph
2. ARNOUX	Renault RE30	5"17 behind
3. PIQUET	Brabham BT49	7"34 behind
4. JONES	Williams FW07	12"04 behind
5. REUTEMANN	Williams FW07/B	31"85 behind
6. WATSON	Marlboro MP4	1'31"14 behind
7. DE ANGELIS	Lotus 87	one lap behind
8. DE CESARIS	Marlboro MP4	one lap behind
9. PIRONI	Ferrari 126C	one lap behind
10. JARIER	Osella FA 1/B	two laps behind
11. DALY	March 811	six laps behind

Fastest lap : LAFFITE (Talbot Ligier JS17), 1'37"62, 136.168 mph.

Postcard from Zeltweg

Poleman Arnoux exerts himself in a special GP "Superstars" contest for Austrian TV: he was beaten by British driver Nigel Mansell

Traditional Styrian dress



A great setting among the mountains for a superb GP. For once, even the weather stayed delightful through the weekend

The well-ordered pace of Austrian life demonstrated by the locals

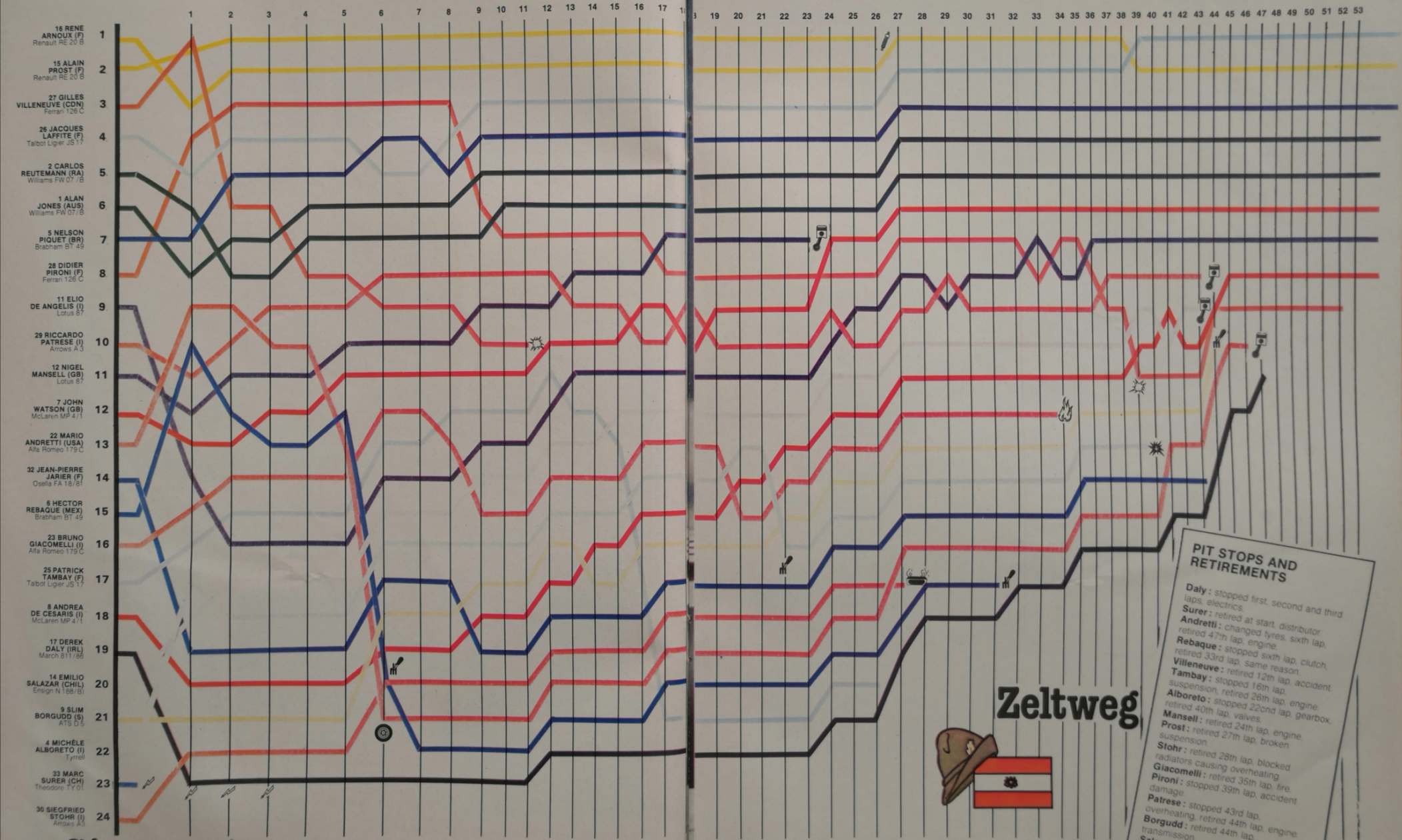
The appearance of this frightened deer caused practice to be red-flagged on Saturday ! photo John Townsend

Guy Ligier enjoys being asked for his autograph photo Peter Burn

Rallyman Jean Ragnotti, seen with his family, was racing an R5 Turbo. Son Julien plans to follow Papa's example

ap by lap - Giro per giro - Runde um Rund

le - Tour par tour - Vuelta a vuelta - Ronde



Zeltweg

PIT STOPS AND RETIREMENTS

Daly : stopped first, second and third laps, electrics.
Surer : retired at start, distributor.
Andretti : changed tyres, sixth lap, retired 47th lap, engine.
Rebaque : stopped sixth lap, clutch, retired 33rd lap, same reason.
Villeneuve : retired 12th lap, accident.
Tambay : stopped 16th lap, suspension, retired 26th lap, engine.
Alboreto : stopped 22cnd lap, gearbox, retired 40th lap, valves.
Mansell : retired 24th lap, engine.
Prost : retired 27th lap, broken suspension.
Stohr : retired 28th lap, blocked radiators causing overheating.
Giacomelli : retired 35th lap, fire.
Pironi : stopped 39th lap, accident damage.
Patrese : stopped 43rd lap, overheating, retired 44th lap, engine.
Borgudd : retired 44th lap, transmission.
Salazar : retired 44th lap, engine.

ap - Giro per giro - Runde um Runde - Tou r par tour - Vuelta a vuelta - rond

FANTASTIC

There was a thrilling start to the German GP, with Prost just ahead of Reutemann and Arnoux in close attendance, while behind the Renault Jones had his mirrors full of Piquet's Brabham. It was a memorable race for the huge crowd, who were kept on tip toes from start to finish. (Photos Bernard Asset/A + P - John Blakemore).

FOUR ACES

The four most impressive drives in the German GP were those of Alan Jones, Alain Prost, Carlos Reutemann and Nelson Piquet. Fastest of all - and the one who most deserved to win - was Jones (above), whose race stuttered almost to a halt with fuel feed trouble. Equally bad luck befell Carlos Reutemann, Jones's team mate, whose engine broke. And Prost, meanwhile, was handicapped by a dud rev limiter. In the end, Nelson Piquet came through to win. (Photos Bernard Asset/A + P).

TAMBAY WAITS FOR HIS CHANCE

Seen spinning off the road here, during the final qualifying session, is Patrick Tambay, whose Talbot has found a patch of oil that the Austrian flag marshals didn't see. It was a tricky moment for the normally unruffled Frenchman, who is having a difficult initiation into the Talbot-Ligier team. By the time he gets to Holland, his JS17 is expected to be fitted with the same improved parts which have given Jacques Laffite's chances such a boost. (Photo Bernard Asset/A + P).

SHATTERED ILLUSIONS

With René Arnoux on pole position at the Osterreichring for the third consecutive year and their two cars leading handsomely in the early laps, things looked good for Renault in Austria. A little too good, perhaps, for soon afterwards both Arnoux and Prost were destined to have their hopes dashed. (Photos Bernard Asset / A + P).

MARC SURER

With the 1979 European Formula 2 title in his pocket, Marc Surer in his second year of Grand Prix racing is now showing genuine star quality. His 4th place at Rio with the Ensign team will be long remembered, as will his splendid fighting races since he joined forces with Theodore at Dijon. Not yet 30, this steely Swiss-German promises to mature into a serious world championship contender before long. With the tough times behind him, there is every chance that Marc is about to embark on the vital last stage in his bid for a well-deserved place in the sun.

by Eric BHAT

After scoring 4th place in Brazil and 6th at Monaco, both with the Ensign team, suddenly everyone started to talk about you. Do you think you are being rewarded now for your persistence?
The result in Brazil was a very important thing to happen to me. Actually, I had been waiting a whole year for something like that to happen: you must get results, you have to score world championship points, in order to show people that you can do it if you have the chance. And it wasn't luck that gave me those points, it was because I was quick. I did the fastest lap time of the race at Rio, which actually meant more to me than the 4th place: I showed the people that I could do it if I had the right car. And that's the most important thing.

You drove well at Monaco, too...
Yes, Monaco was a very hard race for me after the accident on the first lap, when I punctured a tyre on some of the wreckage that was on the track. I had to stop for a new front wheel, and after that I was driving the whole distance by myself. That's bloody hard, especially at Monaco, because it's not the sort of circuit where you can be quick just by driving around smoothly. You really have to fight in order to do good lap times. It was only when Tambay came up behind me and looked as though he was going to overtake me that I realised I could stay ahead of him. Suddenly, just because there was some pressure, I improved half a second per lap or more. But to have done the whole race 80 laps, without losing concentration, is just unbelievable, so I'm proud of that.

After the financial insecurity of the Ensign team, how much better is the situation at Theodore, your new team?
Obviously, things could be better, but I'm in a good team which has enough money... though not too much. They also have very good people around. The only problem is that the whole team is new, so I don't always know exactly who to talk to about things, it's not always clear exactly who makes the decisions. But that's the only problem: otherwise, it's a well organised team. It's a lot different from Ensign, of course, because when I was driving for them I didn't regard Mo Nunn as a boss, I looked on him more as a good friend.

On the technical side, how do the two teams compare?
Well, Tony Southgate, the Theodore designer, has a lot of experience, you can sense that immediately. He knows everything, and he's very careful to tell me about all the changes that he makes to the car. But I also enjoyed working with Nigel Bennett, the engineer at Ensign. I would be happy to work with him again in the future.

You came to Theodore at a difficult time, didn't you?
Yes. At Dijon, my first race with the team, we had to change to the Avon tyres instead of Michelins. I think it was only the team's second race with the hydraulic suspension. And of course I had to get myself adapted to the car. I'm sure that it was difficult for the team, because we were probably slower than we had expected and we had to work out whether it was the tyres, the suspension or me which was responsible. Of course, I had no idea of how good the car *could* be, and with three unknown factors it was a difficult situation to sort out.

But with more money than there was at Ensign, you could at least go testing with the Theodore. Is private testing useful?
I wouldn't say 'useful.' The important thing about private testing is that it shows you the way to go with the development of the car. One day when we were testing, I did my fastest time of the whole day on only my fifth lap... and we didn't go any faster after that. That meant that we weren't making the right sort of changes, we had reached the car's limits. The next step, I think, will be to change the aerodynamics of the car, because if we can't get it to go faster by changing things like the suspension geometry, then it has to be the aerodynamics which are wrong.

What is your impression of the Avon tyres?
To be honest, I have problems with them. We had some qualification tyres, for example, from Avon... and they blistered after only one lap. The characteristics of the Avons obviously don't suit our car, but I don't know what has to be changed on the chassis to make the tyres work more effectively. On other cars, however, the Avons seem to be working quite well,

→

so I think Tony (Southgate) will have to talk carefully to the engineers from Avon to find out what sort of alterations we have to make to the geometry of the car to adapt it to the Avons.

Do you feel that the car itself has good potential?
I think so. It has a very strong monocoque. And it turns in very well to corners, in fact it's the best "turning-in" car that I ever drove. That should make it ideal for slow circuits, although it's not a big advantage for the high speed circuits that we're now on.

You've been with Ensign, ATS and Theodore over the past two years. Do you ever worry about not being able to join a top team?
No, I don't give up! You learn a lot in cars like these. And when I get my chance with a good car, then I'll be ready. If I gave up trying now, then I might not be quick when I got into a top team.

But after fighting just to qualify for two years, isn't it easy to lose motivation?
No, not motivation. What you lose is... the opportunity to improve the car, because when you're fighting to qualify, you have to play safe. You can't take big

risks with the settings of the car, because you might go in the wrong direction, and that could prevent you from qualifying. But I haven't always been fighting to qualify: there have been times when it wasn't a problem.

What was the worst memory for you in Formula 1? After all, you had a very bad accident last year in the ATS at Kyalami...
For me, the worst memory was the second part of last season, after I came back to ATS. (Team owner Gunter) Schmid sacked the designer of the car, Gustav Brunner, and then Schmid appointed himself designer. We didn't improve the car at all, in fact we were going backwards. Then he started complaining about my feet, I mean the same feet which I used to finish 11th at Ricard, 15th at Brands Hatch, and 13th at Hockenheim! "The car is a front runner," he said, "it's just Marc's feet which aren't right." But I think that Lammers showed at the beginning of this season just how bad the ATS really was, because he wasn't able to improve it either.

But it can't have been easy to recover from such severe leg injuries...
It was hard, yes, but it wasn't the problem. I don't believe that I went any slower because of my feet. I had some pain, especially in the few days after each GP... but during a race you don't feel any pain. That was a really bad period, though, because I had started negotiations with another team, Arrows, and Schmid found out. He was so upset that it made a very bad atmosphere inside the team. Then things started appearing in the press about Schmid that weren't very complimentary... and because it was the Swiss press, it all came back to me, Schmid imagined that I was responsible for the things that were being written. It was a very bad period.

As the only Swiss driver currently racing in F1, do you find that you get a lot of support from your country?
Mental support, yes. But not big financial support! I am lucky to have some help from a few small companies which are supporting me, but it's not the backing which you might expect from a rich country like Switzerland. It might have been better if I had been German and not Swiss. When I was a newcomer in racing, I used to be considered German, and then BMW picked me up for their "Junior" team. Slowly they found out about my Swiss nationality, which to be honest was a disadvantage, because in Germany they're looking for a new top Grand Prix driver. Now, especially with the BMW turbo-engine coming along, I

would have a much better chance if I were German. I still have a German racing licence... so I am a *bit* German.

There are rumours that the Brabham-BMW turbo will race for the first time at Monza and that you might be the driver. How would that affect your Theodore contract?
Well, the first thing is that I haven't yet signed with Theodore. I have been faithful to BMW for four or five years now, so I asked them to check the details of the Theodore contract. There were some things that needed to be changed, so the Theodore people are now making a new contract. But even if I were free to race with any team at Monza, you have to remember that there are already 30 cars, and not even (Bernard) Ecclestone can run a third car unless someone else withdraws from F1. And I don't think that will happen.

Nevertheless, you have already been able to test the Brabham-BMW. What was it like to drive? What were your impressions of the engine?
Well, about car first. I was amazed with the lightness of the steering and the gear-change. Gordon Murray must be a remarkable designer to be able to give his drivers such lightness in the controls. The engine, too, is... well, just impressive! The throttle response is so good, just like an aeroplane: right from 7000 rpm to 10,000 rpm, you can really use this engine. There is still a little problem, though, because for about a tenth of a second after you lift off, the engine

still "pushes" a bit. You have to get used to the car, you can't just go out and set a time. You need many laps in order to adjust yourself to the power and the different characteristics. But it is the engine of the future, that's for sure: people who still believe in the Cosworth should drive this car, then they will see.

Would you say that it was the best car you ever drove?
I couldn't tell from the few laps that I drove it. I just warmed it up, then stopped after five or six laps because of a problem. It wasn't difficult to drive, but it was new to me and I needed time to get used to little problems like the "pushing" from the engine. I can't make a full comment about it, because I was a long way off the limit with it.

You still do some racing in saloon cars and F2. Is that for pleasure, or is it to help you make your living?
It's a way for me to earn a bit of money, because in F1 I haven't made any money at all yet. Another important factor is that I don't do much testing in F1, in fact with Ensign we didn't do any at all, so it was very important for me to keep driving, to stay on form. If I was with a big team that went testing every week, then I wouldn't need saloon car racing, at least not as much as I do now...

Do you feel reasonably confident now about your career and your chances for next season?
Yes, it looks better than ever, that's true. But there's a long time to go, the season is not finished yet, and a lot of things can happen. Even the offer I have now (from Theodore) could be changed, because of some financial problems or whatever. In motor racing, you never can be sure, never too positive... you have to be careful in everything you do. □

GORDON MURRAY:

Gordon built this small train for his son Christopher. There's an engine which works under its own power (photo David Winter)

BEHIND THE MASK

From a certain point of view, there is really no place for Gordon Murray in the world of Formula 1 racing. In so many respects, the widely respected Brabham designer is a drop-out, which makes him an original, if not unique, member of the racing community. His fascination with racing has lasted well beyond the 12 years that he's been with Brabham, yet he could drop it at any moment and not miss it. In its way, the wisdom of Murray is an object lesson to us all.

by Eric BHAT

An Englishman's home is his castle. Gordon Murray's house is hidden away in countryside. (photo David Winter)

Gordon Murray often gives the impression that he lives a totally abstracted existence in a little world of his own making. It's impossible, just by looking at him, even to guess the wavelength into which he's tuned. He seems miles away.

Nobody in the racing business has ever seen him so much as run. He never raises his voice. He doesn't even sweat. Languid even in extremis, he remains amazingly remote from the sudden bursts of mechanics' frenzy for which his quietly-delivered orders are responsible.

Even when he's got a plane to catch in ten minutes and there's a 20 mile traffic jam between the circuit ant the airport he refuses to panic. Perchance there's an engine failure in one of the Brabhams on the last lap of the warm-up session: from the look on his face, you might imagine that getting it replaced is as straightforward as changing a spark plug. He's never been known to fuss. Gordon Murray is a racing man, through and through, but the pressures never get to him.

Tall and rangy, the Clouseau-like impression he puts out is, in reality, quite false. With his stubbly chin and a Sony Walkman on his belt, he has a tendency to look as though he's on a busman's holiday, for in distant sunny climes he likes to top the ensemble with his favourite pair of pink plastic sandals. Gordon Murray is so instantly recognisable, in fact, that Formula 1 fans everywhere flock towards him. Partly in self-defence, partly because he feels his place is at the track, he rarely leaves the circuit after practice

until the Brabham mechanics have finished their work.

He maintains this Olympian coolness at all times. The eyebrows occasionally knit together, but that is the only sign of any sort of worry. *"I can honestly say that I have never lost my temper at the track,"* he says. *"This is the first year in Formula 1 that I have been upset... because I really hate the politics we've had over the regulations."*

Whether a race ends in triumph or tragedy, he doesn't show his emotion, and certainly never in the extremes affected by so many others. Notably in Brazil and at Monaco, Nelson Piquet has thrown away races this year which he should have won. Yet Gordon would never make a federal case of it. *"You can't be angry. I mean, every driver makes mistakes, one or two. And Nelson makes fewer mistakes than most drivers at the moment. Strangely, I never feel very upset at the time. I feel more disappointed when we get back to the factory, and I have to tell the people there, Well, we might have had nine points but for such-and-such. I feel more disappointed for them, for all the work they do. We're more like a family than a business. It's them I feel sorry for..."*

With Gordon, appearances are deceptive. Lost though he may be in his thoughts, the truth is that he's no mere dreamer. A gifted, practical engineer, he is admired by his associates, one of whom marvels constantly at his ability *"to think in three dimensions at the same time."* There have been offers from other teams, but he's been with Brabham now for eleven years, *"and I don't think there is any other team where I would be as free to do my own thing as I am at Brabham."*

He hates Formula 1 races. When the green light comes on, it signals the end of Gordon's part in the proceedings. All the technical decisions have been made, things are no longer in his hands, and all the designer can do is sit and wait. In Gordon's case, he feels a sense of uselessness and impatience. *"You know how many parts on the car can go wrong. And I don't do anything in the pits, I don't time or anything like that. I can't help the drivers anymore."*

But though he doesn't like the actual races, Gordon is a tremendous fan of Formula 1 itself, of the the pure engineering studies, the sessions with the drivers to sort out the car, the organisation of the team. *"I never stop thinking about Formula 1. I even take it home with me: new projects, the future..."*

The way of life which Gordon and his wife Stella lead is a reflection of their wide spread of interests. *"Whether it's for the right reasons or otherwise, about eight years ago I realised that there were a couple of people who influenced my outlook on life. Alain de Cadenet was one, I designed a Le Mans car for him. He lives from day to day, he enjoys himself. Stella and I don't look into the future at all, we never plan more than six months ahead. Another person I'm into is (Bob) Dylan. He's someone who had a very deep effect on my life. Can't believe he's American, actually! He must be an import..."*

The Murrays' rejection of America derives from the artificiality of the life there.

Gordon enjoys riding his trials bike around the grounds of his home (photo David Winter)

Murray is a great wine collector. (photo David Winter)

Murray had this summer house installed in his garden (photo David Winter)

Stella was born a Canadian and Gordon South African. Now they're British, and very happy with their adopted country, climate and all.

"The first thing that interests me outside racing is the home and the family. I really do enjoy getting home from work, or from travelling, seeing Stella and our son Christopher." He lives way out in the country, in a cottage so isolated that nothing can be seen or heard from the neighbours. The interior of the house has been entirely rebuilt by the two of them. *"It was bare when we bought it, with walls in funny places. We smashed it all about, built a lot of things ourselves... and put our character into it."*

This pride is the summer house in the garden, *"a sort of octagonal thing which we built from an old church which was being pulled down. We use it for entertaining, and the most fantastic thing for me now is to have a dinner party with really good company... and very good food and wine, with fires and candles. I get such a kick out of that."* He speaks of it with an almost gallic enthusiasm!

A self-taught oenophile, Gordon is justifiably proud of his cellar, which he is constantly improving. With well over a thousand bottles, including several treasures, he finds that his circle of friends is stretching outside the world of racing, though he shares his interest in wine with no less an expert than Charlie Whiting, the chief mechanic of the Brabham team. *"We spend hours going through lists and talking about auctions..."*

In contrast with the egregious Murray, however, there is the solitary man. The isolation of his cottage reflects this side of his nature, and he makes no secret of an ambition which he keeps for the future: *"Stella and I would like to become self-sufficient, just because of the idea. Stella's a very good gardener, she looks after the vegetables. But we also grow our own soft fruit, beans and peas, then we've got potatoes and strawberries as well. We have an arrangement with a man who keeps sheep in the field, meat in exchange for the grazing. Eventually we hope to have goats, some geese... maybe a cow."*

Inevitably, though, his leisure time activity centres on mechanical things, on a purely therapeutic basis of course. *"I like the physical work of being involved with engineering projects. I'm just finishing off a 12-inch gauge miniature railway in the garden, for Christopher. And I've done a deal with the guy who makes the Midas fibreglass monocoque car, to do a one-off mid-engined example with full ground effects. I don't care how long it takes, even if it sits in the garage for three years, so long as it's there for me to go and do some physical work on it when I have the time."*

A less mentally exhausting hobby is Gordon's love of riding his two trials bikes. *"On a trials bike, you can't think of anything except riding. If you let your concentration wander, you fall off, because the thing is so powerful for its weight. After two hours of riding, mentally I find that I'm completely fresh..."*

In a life which is so full of interests, it is difficult to know how he fits in other hobbies like do-it-yourselfing and rock music. One of the attractions of the cottage (before Christopher!) was being able to come home from a trip at 2 o'clock in the morning and blast out the place with his favourite Rolling Stones records. *"I listen to lots of old records, actually: late 60s and early 70s, Humble Pie, Spooky Tooth, Traffic. I tend to like British stuff, because most of the current American music is pretty wishy-washy. I mean bands like the Pretenders, or the Clash, could blow the pants of those Americans..."*

With equal enthusiasm he turns to his graphic delights, painting and architecture, and his treasured etchings. Whatever may have gone wrong with F1 last year at Jarama, at least it made time available for Gordon to visit the magnificent collection of paintings in Madrid's Prado gallery...

Nevertheless, his first love remains his job. He no longer works the "silly hours" which were his lot five or six years ago *"physically, I don't think I could do it anymore"),* and gets his greatest satisfaction from new projects. *"I used to love drawing, but now - with no time available - my drawings are getting worse and worse. What I enjoy most is deciding the layout of a new car, thinking about the weight distribution and the aerodynamic centre of pressure".*

"The third thing which I like is practice at a circuit, being able to work on the car to make it better, then helping the driver to go quicker. It's so interesting."

Nor is it surprising to find that Murray is a racing driver *manqué.* Ten years ago, he came to England with the intention of becoming a driver. *"I had designed and built my own racing car in South Africa, and I raced it in '66 and '67. I won a few races but I had lots of accidents. When I got here, though, I discovered that it was so expensive just to live, and even more expensive to race. So I gave up the idea, and that's when I got my first job, with Brabham..."*

Thus, when Nelson Piquet takes to the track, sitting vicariously beside him is Gordon Murray. *"Yes, I still feel like a driver. Obviously, I couldn't drive one of these things anywhere near the limit. But when Nelson or Hector explains something to me, I do still sort of know what they're saying about the behaviour of the car in the middle of a corner. I'm sure that it's important to be able to understand the dynamics from the control point of view."*

Son of a mechanically inclined father who also built racing cars, Gordon Murray does not exclude the possibility one day of branching out in a completely different direction. His other interests will probably take over eventually from the racing, and why not? He is, after all, a man who likes the simple things that lie behind the complications of his hectic profession. *"I don't think I would like to carry on travelling like this for too much longer. I can see myself as a sort of middle-aged hippie, staying at home and doing odd bits of engineering work. I only need enough money to keep ticking over. We could eat our vegetables, eat our sheep, and drink our wine. If I don't buy anymore from this point, we've still got 12 years' drinking..."* □

TECHNICAL

FOUR TURBOS TO BOOST ALFA'S V8

The Alfa Romeo team is currently working hard on both chassis and engine development. On both fronts, the Alfa men have chosen an orginal course of action, particularly on the engine. The new turbocharged Alfa Romeo V8 will be fitted with four turbos feeding eight carburettors. But research isn't confined to experimentation in the engine field. The team is also developing a new chassis. Such hard work deserves to be rewarded.

by Giorgio PIOLA

A week before the Austrian Grand Prix, the Alfa Romeo team officially presented to the press the new turbocharged V8 engine, mounted in a racing car. The car is one of this year's chassis, specially modified to take the engine. It was a milestone in the development of the engine, because it marked the start of the new V8's track life and testing.

Surprisingly, the Italian engineers have adopted a fuel system which is now almost completely out of date in Formula One. Unlike Ferrari who have a very sophisticated fuel injection system, Alfa Romeo have chosen to use eight Dellorto carburettors, one for each cylinder. However, Carlo Chiti told me that it is only a temporary measure so that the engine could be run as quickly as possible. An injection system is currently under development.

The engine is currently fitted with two turbos, but in future, it will have four. There will be one turbo for each pair of exhaust pipes. The turbos' diameter will be 125 mm instead of the current 175 mm versions.

As illustrated, the two turbos are mounted opposite one another, so that their induction isn't impaired, and the exhausts issue from between the two. The wastegate is mounted between the two turbos.

Alfa Romeo hope that the advantages of this system will be two-fold: a reduction in turbo-lag, and more power at lower revs.

Despite this considerable task, the Italian team is also working on the current race cars. In England and Germany, the team's cars were fitted with new rear suspension designed to allow for better air flow from the side pods. New bodywork should be added shortly. It has been designed by SERA in Paris and was tested by Giorgio Francia at Alfa's test track at Balocco during the Austrian Grand Prix weekend.

The team is also modifying the chassis built this year, which is why last year's cars were used in Austria. The newer cars are undergoing a change of weight distribution by extending the wheelbase.

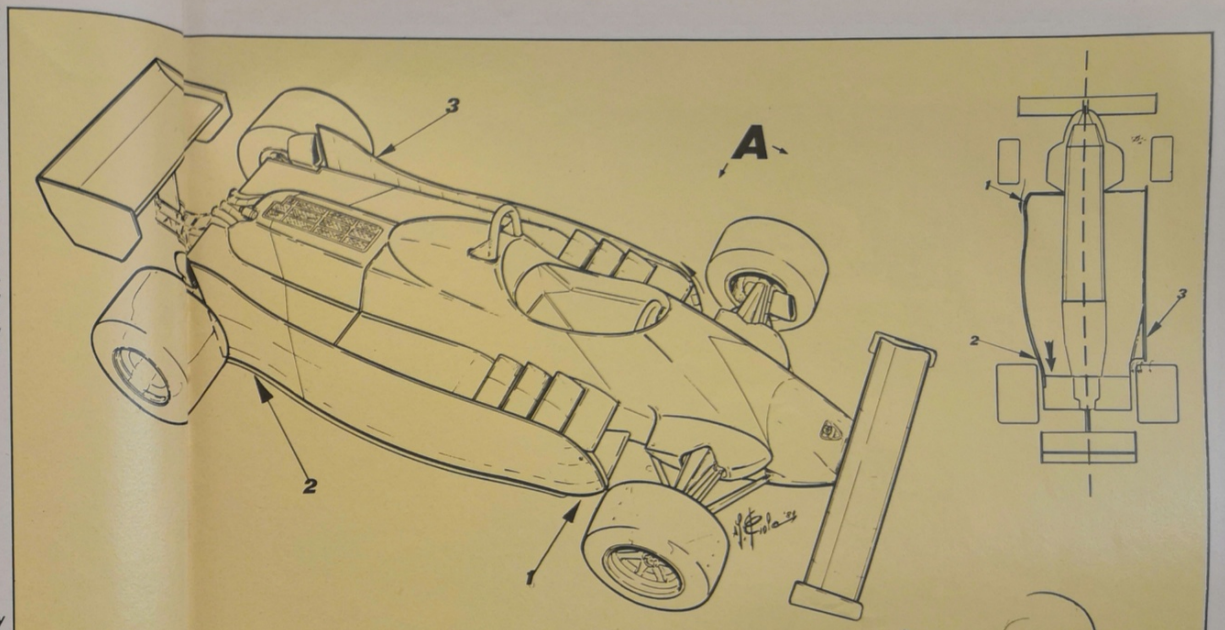
Finally, Alfa Romeo's first carbon fibre monocoque has recently been completed. Like Marlboro's MP4, it's theoretically lighter and stiffer than a conventional aluminium monocoque. It's due to make its debut at Monza, and will be fitted with new bodywork, the front part of which is pictured here. The chassis is fitted with bulkheads which have different structural torsion and rigidity because of varying fibre patterns.

Finally, Alfa Romeo will use a Weismann gearbox. The gearbox has been tested by Brabham but Alfa Romeo are also expected to use it, having an exclusive contract to do so which they share with Brabham. □

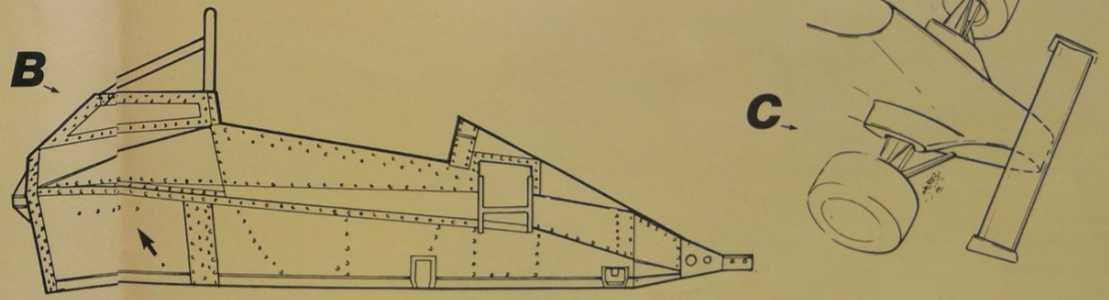
TECHNICAL DETAILS OF THE 158 TURBO ENGINE

Bore and stroke: 74 mm x 43.5 mm
Cylinders and pattern: eight in 90 degree V
Capacity: 1,496.7 cc
Number of valves per cylinder: 4
Power output: 585 bhp
Maximum revs: 11,200 rpm
Torque: 39 kgm
Compression ratio: 7.1
Turbo boost pressure: 1.85
Weight: 140 kilos
Oil tank capacity: eight litres

NEW BODYWORK Pictured is Alfa Romeo's new bodywork designed by the SERA design studio. The sides are rounded behind the front wheels (1) and in front of the rear wheels (2) in order to improve air flow and to prevent turbulence from the rear wheels. New fins (3) have been used. Compare in the picture below the difference between the 179C (with straight sided bodywork) and the 179F (with rounded bodywork)

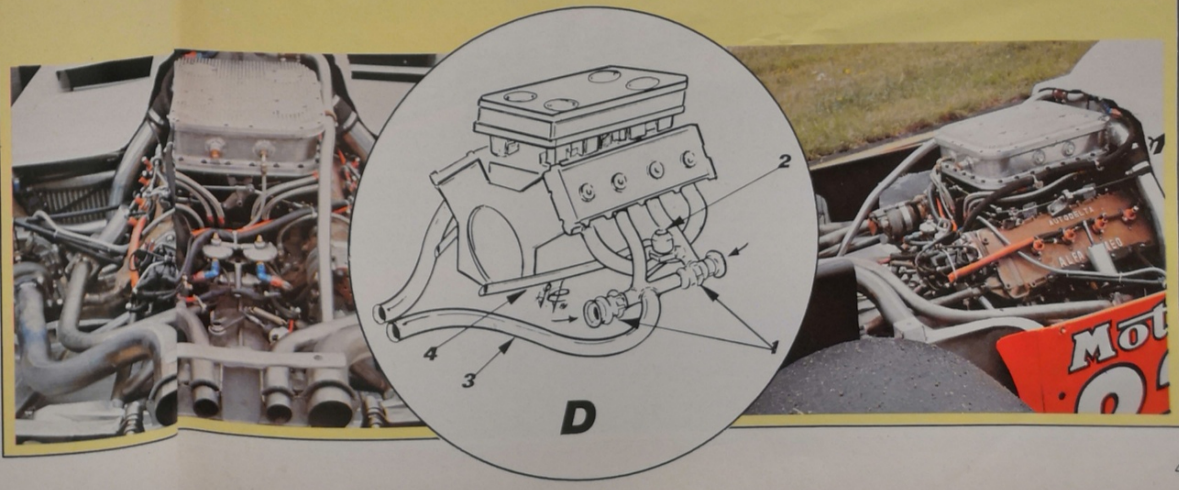


The 179C is currently being modified. It's being lengthened with a spacer around the fuel tank area



New front bodywork for the carbon fibre chassis which will make its debut in Italy

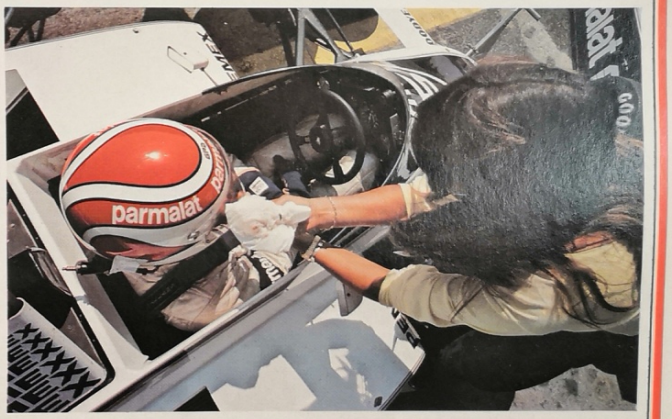
ALFA'S 158 TURBO ENGINE Two turbos (1) per cylinder bank, mounted opposite one another. The wastegate is mounted between the two turbos. One primary exhaust for two cylinders (3) and a single wastegate exhaust



The new turbocharged V8 engine, currently boosted by twin KKK turbos, but soon to be fitted four turbos

NELSON PIQUET: GETS LUCKY

Nelson relaxes by the sea between races. (Photo Sylvia "P")



Cleaning his vizor before the start. (Photo John Blakemore)

Nelson Piquet heads for an unexpected win at Hockenheim. The Renaults and Williams were faster on the track, but it was Nelson's lucky day. (photo Bernard Asset/A + P)

In the days of the Roman Empire, superstitious tradition dictated that luck was an asset in much the same way as courage was the quality of fighting men or ingenuity the ability of a great tactician. By the logic of the time, a good general was also a lucky man. On that basis, after the struggle for honours at Hockenheim, Nelson Piquet deserved to be declared Emeperor...

by Mike DOODSON

Even before the start of the German Grand Prix, the senior members of the Parmalat-Brabham team had decided to take a gamble. No chance of beating the two Renaults, which everyone knew would be capable in the race of utilising their turbomotors to the full, even if they didn't have the advantage of their excellent Michelin qualifying tyres.

The two Williams on the second row were a slightly different type of opponent, however. Some serious wind tunnel work since Silverstone had produced some useful extra downforce for Jones and Reutemann, and the two Saudia-Leyland cars looked particularly competitive with their fuel tanks full in the warm-up on race morning.

Thus, if Brabham driver Nelson Piquet were to have a serious chance of victory, the team would have to look to some major "tweak" which the Williams boys could not exploit. That advantage, it became clear, was to be the use of the smaller, 13-inch Goodyear front tyre.

"The Brabham BT49 is much more comfortable to drive on the smaller tyres," explained designer Gordon Murray, *"so it was the logical choice."* What he didn't mention, however, was the worry that had arisen at Silverstone, where both Brabham drivers had hit serious problems with their 13-inch Godyears during the race. Piquet had been heading for what would have been an impressive victory (after the failure of the Renaults) when one of his front tyres lost its tread, evidently after overheating, and the car had been destroyed in a serious accident at Beckett's corner. Less spectacular, but almost as worrying, was the tyre wear

which had forced Piquet's team mate Hector Rebaque to make a stop during the race.

For Hockenheim, Goodyear had produced some different specification tyres in both 13-inch and 15-inch sizes. But the Williams team, calculating that the taller tyre would run cooler, was taking no risks. The greater reliability of their choice would, they hoped, be decisive in the long run.

On the afternoon before first practice, Nelson was happily talking to his mechanics in the excellent new lock-up pits which have been installed since last year. Other drivers were busy elsewhere: most of them were in Stuttgart, collecting their Mercedes courtesy cars and visiting the Metzingen warehouse of the Hugo Boss tailoring company, where superbly-made men's clothes are available to the GP stars "off the peg" at irresistible prices.

"Not in Stuttgart?" I asked. *"Naw,"* he said, *"I got my personal 500 SEL last year. And Sylvia and I spend all our time in tee shirts and jeans. All those nice clothes I got last year have stayed in the wardrobe..."*

There was no swelling on the leg that had been injured in the British GP. To the surprise of those who had seen the wreck of his car after Silverstone, Nelson had been unhurt. *"I had some pain from it on the day afterwards, but it went down before the weekend. I can't even feel it now."*

After two days of practice, however, the air of relaxed optimism in the Brabham camp had slightly evaporated. Not only had the two Renault turbocars crushed all opposition in qualifying, but Jones and Reutemann filled the second row... leaving Nelson three-hundredths of a second slower than Pironi's Ferrari on the third row.

To get the decisive edge that would keep Nelson in the championship reckoning, the team had already reached its conclusion about tyres. *"It was a common decision,"* said Murray, *"which all of us made together. On the 15-inch tyres we might realistically have hoped to come 3rd or 4th. On the 13s, there was a chance of winning. And with 17 points separating Nelson from Carlos (Reutemann) in the world championship, it was worth going for a win."*

Later that afternoon, it was a surprised and delighted Nelson Piquet who happily walked away from the paddock. Surprised because it was a history of slip-ups and misunderstanding on the part of the all-powerful Renault and Williams teams which had given him this unexpected victory. Delighted because he had had not one but two separate accidents during the course of the race, either of which could have eliminated him.

"On the first lap I was already in one accident," he said. *"Coming up to pass Arnoux I hit him a little bit with my front wing... it gave him a flat tyre. It's only a small wing, so it didn't affect the handling of my car too badly, but it blocked the oil radiator. The oil started to overheat so badly that I decided to come into the pit. But on the lap when I was going to come in, the wing blew off!*

"So I kept going. I went past Rebaque and then came up behind Prost and Alan (Jones). I was only one metre behind Alan when a piece of aluminium appeared from somewhere, I still don't know where, and tore the skirt from under the left side of my car. That gave me terrible understeer."

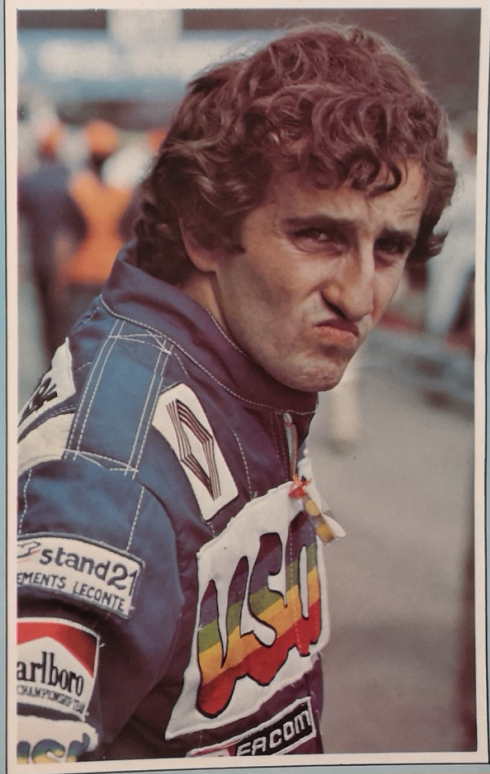
Watching in the stadium section, on the outside of the Sachs curve, was Gordon Murray, puzzled and not a little alarmed by the inexplicable changes that were becoming evident in the handling of the Brabham as a result of the various incidents. Needless to say, the designer imagined for a moment that the tyre gamble had failed, and that Nelson would have to make a pit stop for replacements.

But Nelson was still fighting, as he explained. *"It took me two laps to get past Reutemann after his engine started to give trouble. I thought I would have no chance to pass Prost and Alan. I was lucky to get Prost. He had the trouble with his rev limiter, is the first time I see a Renault so slow on the straight. Then Alan had his trouble. So what more could I want? Alan had no chance to block me, I went through and I won the race."*

No problems with the tyres? *"Oh, it was a bit hot this morning, I think maybe we would have trouble. But everything worked out OK. I mean, you don't have two accidents and expect to win..."*

Meanwhile, on their happy way home, Brabham mechanics Joe Moore and Neil Harvey were leading the "escape bid" out of the *fahrerlager* in their Escort hire car. They had been among the first in line for the special route arranged by the organisers, and they couldn't believe their luck. *"Actually, we were second in the procession,"* confessed Neil *"We thought of trying to push ahead of the Arrows guys in the queue ahead of us. But we decided not to. We thought that the Brabham team had used up all the luck that we were going to have that day..."* □

PROST *Scriptum*



Fate decreed that the champagne at the end of the Austrian Grand Prix was not for me, but I left Austria sure in the knowledge that a magnum would come my way fairly soon. You see, my wife is expecting our first child this week, so a glass of bubbly is not far away.

It was a shame the suspension had to break. It had been a weekend to remember up to that moment, and not simply because of the motor racing. It isn't all practice sessions and racing. A Grand Prix embraces much more than that during its four days.

For instance, there's the hotel. The Renault team discovered our little place last year, tacked on to the side of a mountain. It's a gloriously quiet and secluded spot, so much so that I didn't wake up on time on Saturday morning. Gérard Larrousse woke me up as everyone was leaving. Such are the hazards of motor racing!

But I really liked our hotel. In fact it was more like a bed and breakfast place in some ways. We were all part of the family, and we had real home cooking, including the delicious Apfel Strrudell (that's what it sounded like, it's a kind of apple and cream cake). Actually I don't speak any German at all, which is why the entire staff of the hotel collapsed into fits of laughter every time I asked for the salt!

So everything was really relaxing, and we had a good weekend apart from the final result. You already know what happened in the race if you've worked your way through to my little slot at the back. René and I took off into the lead, leaving everyone to try and get past Didier Pironi who was doing an excellent job of stopping anyone chasing us.

Then Jacques got past and began to catch us, and I must honestly say that I don't think I could have gone a lot quicker. But having said that, I don't think he would have overtaken me. Catching me up was one thing, but overtaking was quite another. Thanks to the Renault turbo and our excellent straight line speed, I'd like to think that Jacques would have found it very difficult to get his Talbot past our Renaults.

I was already well-versed in the problems that normally aspirated engines have with turbos, having had Alan Jones breathing down my neck for nearly half the race at Hockenheim a couple of weeks before. That day I was a little down on power, but I knew how much quicker the turbo was.

This time, it was Rene who finished second. You know, I'm getting a little fed up with us Renault drivers starting on the front row of the grid, but only finishing second. I'd quite willingly swop that front row position for the second row, providing I could swop second place for first.

I expect some of you are wondering just why we are unable to win. Certainly in Austria, the turbo was supposedly at its best over 2000 feet above sea level. But engines aren't everything. They may, of course, be an advantage, but at the same time, other factors may handicap us. Our main problem was road-holding. The cars were good in practice, but when they were set up for the race, on full tanks and race tyres, they weren't so competitive. My main problem was turning in to corners.

I've spoken about it often, but I really do think that I might have been world champion this year. If you think about it, I've missed out now on three wins running. I'll let you do the sums, but at the end of them, you'll realise that when someone talked to you about 'a small French championship contender', they didn't mean Jacques Laffite!

You might think that I've got time on my side, it's only my second season, I can wait for a season or two, etc. That is absolutely no consolation. It's purely and simply very frustrating to be so close to victory, and yet to lose.

The season isn't over yet, of course I don't think Montreal and Las Vegas are going to suit our cars, but I'll bet that we'll be competitive at Zandvoort and Monza. Watch out for the yellow perils swallowing up the blue spot... □

OK AYJAY?

by Alan Jones

Three points from two races is not the sort of news which I had been hoping to report after the GPs in Germany and Austria. As I've mentioned here before, though, there's not much to be gained from talking in terms of "ifs" and "buts", so I prefer to report on the positive side of things.

As soon as possible after the German GP, we got down to sorting out the fuel problem which had arisen in the last few laps. I can't even begin to describe my feelings at Hockenheim when the engine started to misfire exactly as it had done at Monaco. In the end, it meant that we lost two races which we — not just me, but the entire team — had worked hard and long to win. At Monaco, only Gilles Villeneuve was able to re-pass me. But at Hockenheim it seemed as though the entire field was able to overtake, and my nine points dwindled to a big, fat zero.

Getting to the bottom of the problem at home in England was an intricate process, involving as it did tranferring parts from one car to another. Arriving at Silverstone, I knew that the team was taking the matter seriously when I found that they were even heating the fuel to Hockenheim-type temperatures in order to reproduce the exact conditions.

Patrick Head, our designer, asked me not to give away all the details of what we found. It was quite encouraging at the end of a long day, however, when he turned to me and said "we were all as pissed off at Hockenheim as you were, but it would have been much worse if we'd come here today and not found out what was wrong with the car." It's because Frank Williams has people like Patrick on the team that I shall be driving for him again next year.

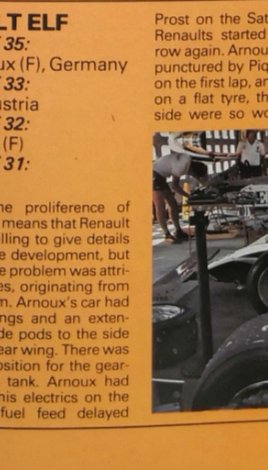
Needless to say, the problems we had in Austria had nothing to do with the fuel system. Although we had made some improvements to the handling of the FW07 before Hockenheim (I think Alain Prost will have had something to say about this on the preceding page!), we had a lot of trouble getting the car adapted to the Osterreichring.

I was encouraged by the times that we were able to achieve in the Sunday morning warm-up, when I was quickest. But I missed a gear at the start and made a terrible mess of it, so like half a dozen others I found myself stuck behind the bloody turbocars.

A few laps later, I could feel that something had gone wrong with the rear suspension. Something had broken at the top of the spring mounting, but although the handling was pretty bad, it wasn't getting any worse, so I continued. That decision at least gave me three points, my first since Monaco, but we could have done much better. I don't feel as though I have much chance of being champion again, but as long as Jacques Laffite doesn't make a habit of winning, and if Carlos continues to finish badly, and Nelson doesn't... well, I said no "ifs" and "buts," so I'll let you work out the permutations.

At the moment, I'm much more concerned about the crazy cars which the so-called regulations have forced on us. I can remember, not so long ago, when the Osterreichring seemed like a reasonably smooth circuit which was a pleasure to drive. This year, when I got out of my car, not only had the rear suspension partly broken but I felt as though I'd been the ball in a particularly energetic football match.

I'm not the first driver to mention this dangerous situation, so I won't go over the subject in detail. But knowing that this column is read in high places, I appeal here and now to Mr Balestre to get his act together, call the designers to a meeting and get something done before a tragedy occurs. Even if it means over-ruling Ferrari or going back on the Concord agreement □



Cockpits

TALBOT GITANES

Ligier-Matra JS 17/04:
Jacques Laffite (F)
Ligier-Matra JS 17/03:
Patrick Tambay (F)
Ligier-Matra JS 17/02:
spare

Germany: Three days testing at Clermont-Ferrand had produced excellent results with a new narrow track which was fitted to the two race cars while the spare had the older and wider version. But once again, the team's problem was with wheel bearings, despite new versions from SKF. Wheel bearings failed on Tambay's car in the race, while Laffite had slight handling trouble with the Michelin TRX tyres, but was happy to finish third.

Austria: The Ligier team had retained the narrow front track, but there were virtually no other changes to the chassis. However, Matra have been working on the engine and ignition, the drivers being able to rev to 13,000. The team was worried about fuel consumption at Osterreichring and had an additional nine litre fuel tank to mount on the top of the main tank. In the end it wasn't used, nor was it needed, fortunately, for Laffite won while Tambay had both hydro-pneumatic suspension and engine trouble, the latter causing his retirement.

PARMALAT BRABHAM

Brabham-Ford BT 49/14:
Nelson Piquet (BR)
Brabham-Ford BT 49/12:
Hector Rebaque (MEX)
Brabham-Ford BT 491_10:
spare, Germany
Brabham-Ford BT 49/9:
spare, *Austria*

Germany: Piquet had a new chassis to replace that written off at Silverstone. It had the stiffer BT 50 front end, and for the first time the team was using carbon fibre side pods. The spare car had carbon fibre disc brakes again, as well as an instrument to control the brakes' temperature. Although the Brabham practice sessions were relatively trouble free, the same can't be said of the race, despite excellent results. Piquet lost part of his front nose fin against Arnoux's Renault on the first lap, and later ran over some aluminium which ripped off a skirt. Even so, he won the race while Rebaque shot up through the field during the opening laps but then the clutch broke, but he still finished an excellent fourth.

Austria: The team had left chassis number ten at the factory as it isn't thought to be very competitive. All three cars had carbon fibre side wings as in Germany which include a higher profile in front of the rear tyres. There was also a new skirt mounting system on the Brabhams, while Piquet's race chassis retained the BT 50 stiffer front end. Rebaque crashed on the Friday so took over the spare car which Piquet needed shortly after when his race car's engine gave trouble. On the Saturday, he found his car so good on full tanks that he preferred to leave it and use the spare for the rest of the day. Piquet finished a good third, while Rebaque retired with clutch trouble.

RENAULT ELF

Renault RE 35:
René Arnoux (F), Germany
Renault RE 33:
Arnoux, Austria
Renault RE 32:
Alain Prost (F)
Renault RE 31:
spare

Germany: The proliference of turbo engines means that Renault are now unwilling to give details of their engine development, but the Silverstone problem was attributed to valves, originating from the fuel system. Arnoux's car had new underwings and an extension of the side pods to the side plates of the rear wing. There was also a new position for the gearbox oil catch tank. Arnoux had trouble with his electrics on the Friday, and fuel feed delayed Prost on the Saturday, but both Renaults started from the front row again. Arnoux's rear tyre was punctured by Piquet's front wing on the first lap, and after half a lap on a flat tyre, the skirts on that side were so worn that the car never handled well again, Arnoux finishing 13th. Prost's rev limiter cut in 600 revs too early for most of the race, but he finished a good second.

Austria: All three cars had new bodywork around the newly positioned oil catch tank, and underwing extensions. A lot of work is being done on the engine, although the turbo boost had been turned down to 2.6 instead of the 2.7 used at Hockenheim. Prost's car was differently set up to Arnoux's on Friday, but changed to the same specification o Saturday when he set his fastest time. While Arnoux was disappointed to finish second aftr the Renaults' flying start, Prost's front suspension broke on the 27th lap, causing his retirement.

Cockpits

TAG WILLIAMS

Williams-Ford FW 07C/16:
Alan Jones (AUS)
Williams-Ford FW 07C/14:
Carlos Reutemann (RA)
Williams-Ford FW 07C/15:
spare

Germany: Alan Jones had a new chassis for Hockenheim, that crashed at Silverstone still being repaired. There were a lot of aerodynamic changes to the Williams, including a new nose with fins and side plates instead of the wide wing. The nose fins were easily adjusted through a hole in the nose section. A new airbox worked well on the straight and didn't appear to upset airflow onto the rear wing. The biggest change, however, was a new side pod profile which changed the centre of aerodynamic pressure. The spare car was fitted with an electrical device to adjust fuel pressure and voltage on the Friday, while both drivers tested 15inch front wheels on the Friday, Reutemann also testing 15inch rears. Reutemann's engine lost water during the warm-up on Sunday and he was forced to use the spare car. Both he and Jones featured very strongly, but Reutemann retired when his engine broke, and Jones was robbed of the lead when his Monaco problem, and Carlos's Dijon misfiring reappeared and so delayed him that he finished only eleventh, poor reward for a superb drive.
Austria: After Hockenheim, it was found that the reason for Jones's misfire was that the fuel wasn't being picked up, even though the tank still had fuel in it. A new system was built up and tested at Donington and Silverstone for two days for three days with satisfactory results. All three cars were fitted with the new system as well as air boxes. Reutemann had an engine problem on Saturday morning so the DFV had to be changed before final practice. Both Williams finished in the first six, although they were generally outclassed by the turbos and of course, Laffite.

MARLBORO MCLAREN

Marlboro-Ford MP4/2:
John Watson (GB),
Germany
spare, Austria
Marlboro-Ford MP 4/1:
Andrea de Cesaris (I)
Marlboro-Ford MP 4/3:
spare, Germany
Watson, Austria

Germany: The McLaren International team had new rear suspension geometry on the spare car, and were using Michelin's TRX tyres for the first time. More suspension changes and an underbody were expected from John Barnard's drawing board for Austria. Watson had a blown engine on the Friday, and more trouble during the raceday warm-up, forcing him to use the spare car which he found to handle worse than any car he'd ever driven before, particularly on full tanks. He was lucky to score a point. De Cesaris had a spin on the Saturday and the same thing happened on the Sunday in the race, but this time he stalled and didn't restart.
Austria: There was no new suspension for Austria, but air boxes on all three cars instead. The biggest drama was De Cesaris's accident on the Saturday when he badly damaged the suspension and side pods, but luckily not the chasis. De Cesaris and Watson both finished the race, the later scoring a single point for sixth.

JOHN PLAYER TEAM LOTUS

Lotus-Ford 87/3:
Elio de Angelis (I)
Lotus-Ford 87/4:
Nigel Mansell (GB)
Lotus-Ford 87/2:
spare

Germany: There were no great changes a part from a new skirt system to the Lotus cars for Germany, but both drivers still compained of lack of downforce, and were hoping for new and wider side pods for Austria. The biggest change was that Mansell appeared to be getting number one driver treatment. He had the better springs on the Friday, and the spare car set up to his liking. However, his race was troubled right from the start with a fuel leak which caused his retirement on lap 12. De Angelis kept going to finish seventh.
Austria: The team still didn't have any wider side pods because it requires changes to the bodywork and more work than simply changing the pods themselves. However, the 87s were changed, with new cooling system, nose fins replacing the wide front wing, and longer exhausts giving an extra 200 revs. Mansell tested new side pods and different springs on the spare car on the Saturday, but the team's main worry was the water temperature. Mansell retired with engine trouble on the 24th lap, but De Angelis went on to finish seventh.

MARCH GRAND PRIX

March-Ford 811/06:
Derek Daly (IRL)
March-Ford 811/05:
spare

Germany: The race chassis had been slightly lightened, while the spare was now in the same specification. Both cars' gearboxes broke in the first session, and Daly's suspension was too solid in the second. However, he got the car onto the grid the next day despite having a limited number of Avons to use, even though one set of qualifiers was slower than the race rubber on which he set his time. A bump with Mansell on the eleventh lap eventually caused the retirement of the Guinness Rizla March.
Austria: No major changes to the cars in Austria, and Daly qualified nineteenth, despite an alarming moment when the right rear tyre blew during practice. Daly had three pits stops with an electrical problem but then continued to finish last. Adrian Reynard intends to have new front track, side wings and a weight saving of 10 kilos for Holland.

FERRARI SEFAC

Ferrari 126 C/054:
Gilles Villeneuve (CDN),
Germany
spare, Austria
Ferrari 126 C/053:
Didier Pironi (F), Germany
Ferrari 126 C/051B:
spare, Germany
Pironi, Austria
Ferrari 126 C/050B:
Villeneuve, Austria

Germany: The new spare car was as at Silverstone but with new front and rear suspensions plus new front bodywork which was lower and flatter at the front. New side pod fixings were intended to prevent the porpoising experienced at Dijon. All three cars had new front wings and an extension forward of the side pods. The Ferrari team suffered two blown engines on the Friday and one on the Saturday plus problems with their own fuel injection system. Pironi's engine kept misfiring in the race warmup, and on Pironi's second lap, the engine stopped altogether. Villeneuve had tyre trouble and steadily slipped down the order, as well as making a stop to change tyres. He finished in tenth place.
Austria: Two new B-specification chassis were taken to Austria with many changes made to them. They had a new front end and new rear suspension with revised uprights intended to free air flow from the side pods. On Saturday, the team tried an underwing extension similar to that on the Renaults. Pironi had turbocharger trouble on both days, while Villeneuve had electrical and injection problems. Only Pironi finished what was a fraught Grand Prix for Ferrari.

DENIM OSELLA

Osella-Ford A1/04:
Jean-Pierre Jarier (F)
Osella-Ford A1/03:
Bepe Gabbiani (I)
Osella-Ford A1/02:
spare

Germany: The Osellas were fitted with new driver-adjustable front anti-roll bars and brake balancers, but the main problem is still too much downforce for fast circuits. Gabbiani had broken engines on both days of practice and didn't qualify. Jarier took his car to a creditable eighth place. The team's future may lie in short-stroke DFVs, one of which was at Hockenheim, while the mechanics are building a new chassis for Holland. It will be Osella's first monocoque.
Austria: The only chassis development was the presence of side wings of honeycomb structure to improve efficiency on the spare car. The Osellas were also fitted with driver-adjustable rear anti-roll bars. Jarier used one of Osella's short-stroke Cosworth engines which gives excellent torque, but reverted to a standard cosworth engine for the race, as the short stroke still lacks reliability. For once the team had no engine troubles at Austria. However, Gabbiani lost his left front wheel on both practice days, as the Gotti wheel rims were fouling the upright. Once three millimeters had been shaved off the upright, the problem was solved, but Gabbiani failed to qualify. Jarier finished tenth. The team are now working hard on the monocoque chassis which is due to be shown for the first time at Monza early in September.

ENSIGN

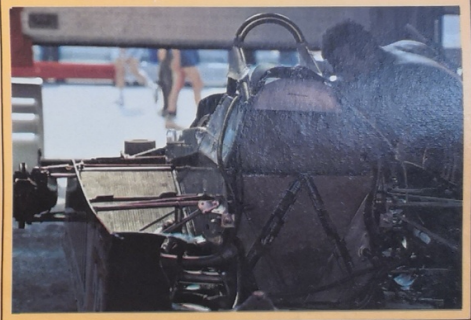
Ensign-Ford N 180 B/15:
Eliseo Salazar (RCH)
Ensign-Ford N 180/4:
spare

Germany: The team had a spare but incomplete chassis in the transporter for the first time. Small changes had been made to the race car to adapt it to Avons. Salazar qualified on the back row, but after an early pit stop to change a leaking brake caliper, drove superbly to set sixth fastest lap of the race.
Austria: Salazar was able to use the spare car at Osterreichring, a chassis which is in fact one of last year's versions but updated. Nigel Bennet was at home working on the team's new car, but Salazar qualified and was running strongly when his engine broke on the 44th lap.

MARLBORO ALFA ROMEO

Alfa Romeo 179 B/03:
Mario Andretti (USA),
Germany
Giacomelli, Austria
Alfa Romeo 179 B/06:
Bruno Giacomelli (I),
Germany
Andretti, Austria
Alfa Romeo 179 D/01:
spare, Germany
Alfa Romeo 179 B/02:
spare, Austria

Germany: Although all three cars were fitted with the new rear suspension first seen on the spare car at Silverstone, Alfa Romeo's future is currently more interesting than the present. The Alfas were troubled during practice at Hockenheim, and although both cars finished the race, neither of them featured strongly.
Austria: The team had been testing with new Lotus-like bodywork but the cars were fitted with their usual bodywork in Austria. All three cars were fitted with Ferrari-type skirt mountings, while Andretti's car had carbon fibre side wings and the new suspension. Giacomelli preferred older specification suspension. The team also tried various wing profiles, and suffered some engine trouble. Neither car finished the Grand Prix.



RAGNO BETA ARROWS

Arrows-Ford A3/5:
Riccardo Patrese (I)
Arrows-Ford A3/3:
Siegfried Stohr (I)

Germany: Patrese had a new hydraulic suspension system on his car, while Stohr was back in chassis number three, the car that he used at the start of the season, as his number six was damaged at Silverstone. His car was fitted with a stiffer rear anti-roll bar for which he has been waiting for some time. He made it onto the back of the grid and finished the race in 12th place. Patrese was heading for a place in the top six when the engine broke. The new chassis has now been delayed to Monza. It won't be of carbon fibre because designer Dave Wass isn't happy with research into that material. Rear suspension will be as on the current cars while bodywork will be similar to a Williams or McLaren.
Austria: The team is obviously concentrating hard on giving Riccardo Patrese all the best equipment, to the extent that both his race car and the spare were fitted with the new rear suspension introduced at Dijon. Meanwhile, Stohr had the older suspension and generally speaking, second best of most things. Patrese tried his car without any springs at all on the Friday, but after only a few laps found the handling impossible. Patrese was complaining about his Pirelli tyres' grip, and the fact that each tyre weighs 12 kilos more than its Michelin equivalent, and 15 kilos more than a similar Goodyear. Both cars retired from the Grand Prix.

Cockpits

CANDY TOLEMAN

Toleman-Hart TG 181/1:
Brian Henton (GB)
Toleman-Hart TG 181/3/4:
Derek Warwick (GB)

Germany: Both Tolemans were fitted with new wastegates and exhausts and both drivers were using updated engines. Henton's was in the most advanced stage of development with new camshafts, wastegate and another 25 psi boost. Warwick's engine misfired badly for most of the sessions and it wouldn't work on softer Pirellis. Henton came close to qualifying despite a split intake in the first official session, but the engine broke on the second lap of the second session, valve gear being suspected. Accidents at Silverstone and Dijon have delayed the team's development, but a new chassis, shedding of weight, Behr intercoolers and Matrix radiators were expected for Austria, giving a 20 per cent improvement in performance.
Austria: The new radiators worked well in keeping down the induction temperature into the intercoolers, but the Toleman men are really awaiting their new car expected in Holland. Warwick's car had a number of little modifications for Osterreichring, but still neither car qualified, although by less than 0.2s.

FITTIPALDI

Fittipaldi-Ford F8C/4:
Keke Rosberg (SF)
Fittipaldi-Ford F8C/3:
Chico Serra (BR)
Fittipaldi-Ford F8C/2:
spare

Germany: A disastrous weekend for the under-financed Fittipaldi team. Rosberg had a new and wider front track, but mechanical problems prevented him from qualifying. Serra's hydraulic suspension gave problems, but three engines broken and neither driver qualifying is hard on finance for a struggling team.
Austria: The team didn't make the trip to Österreichring as they only had one engine following recent blow-ups, the situation aggravated, no doubt, by their financial troubles.

TYRRELL

Tyrrell-Ford 011/1:
Eddie Cheever (USA)
Tyrrell-Ford 010/3-5:
Michele Alboreto (I)

Germany: The 011, crashed at Silverstone, had been repaired by cutting out the damaged front and replacing it. Cheever tried new underwing profiles on the Saturday which proved successful, and he went on to finish an excellent fifth in the new car. Alboreto, meanwhile, is stuck with Cheever's old 010 which is poor on turn-in which made him slow in the stadium, and he didn't qualify. His 011 is expected for Zandvoort.
Austria: The new car was fitted with small front nose fins instead of a wing at Osterreichring, while there was also a new suspension system, cooling and skirts. But Cheever's main problem was a new suspension set-up which Maurice Philippe had calculated would suit Goodyear's tyres. Unfortunately, it would only work with 15 inch tyres, and then on the Saturday, Cheever's engine was down on power. He took over the spare 010 but failed to qualify it. However, Alboreto got his old 010 onto the grid, but had both gearbox and engine trouble in the race and retired on the 40th lap.

ATS WHEELS

ATS-Ford HJS/1:
Slim Borgudd (S),
Germany, spare, *Austria*
ATS-Ford HJS/2:
spare, *Germany*,
Borgudd, *Austria*

Germany: A second Herve Guilpin-designed ATS chassis was in the Hockenheim pits and both chassis were close to the weight limit. Borgudd qualified well but retired right at the end when the engine broke.
Austria: The ATS was fitted with a new nose section, the big front wing being replaced by two nose fins. The chassis had also been stiffened following problems with both front and rear ends in the past two races. Borgudd qualified, but retired on the 44th lap with broken transmission.

THEODORE RACING

Theodore-Ford TY01/2:
Marc Surer (CH),
Germany
Theodore-Ford TY01/3:
Marc Surer (CH),
Austria

Germany: After a troubled practice, Surer put the Theodore onto the penultimate row of the grid. A tyre blistered after three laps of the race causing the Swiss driver to pit and then he lost a skirt. On the very last lap, a steering arm broke sending the Theodore into the barrier but Surer was classified a lowly 14th.
Austria: The team had no spare car in Austria as chassis number two was still being repaired following the Hockenheim accident, and number one was being updated. The team could have done with a spare, because Surer crashed the lone Theodore on the Saturday morning, and the whole of the front end, including bulkhead and suspension, had to be repaired. Tony Southgate helped his mechanics do the job. The Theodore was fitted with new wider track and long side wings, replacing the bodywork around the rear tyres. Unfortunately, it was all in vain. Surer's electrics broke on the first lap.

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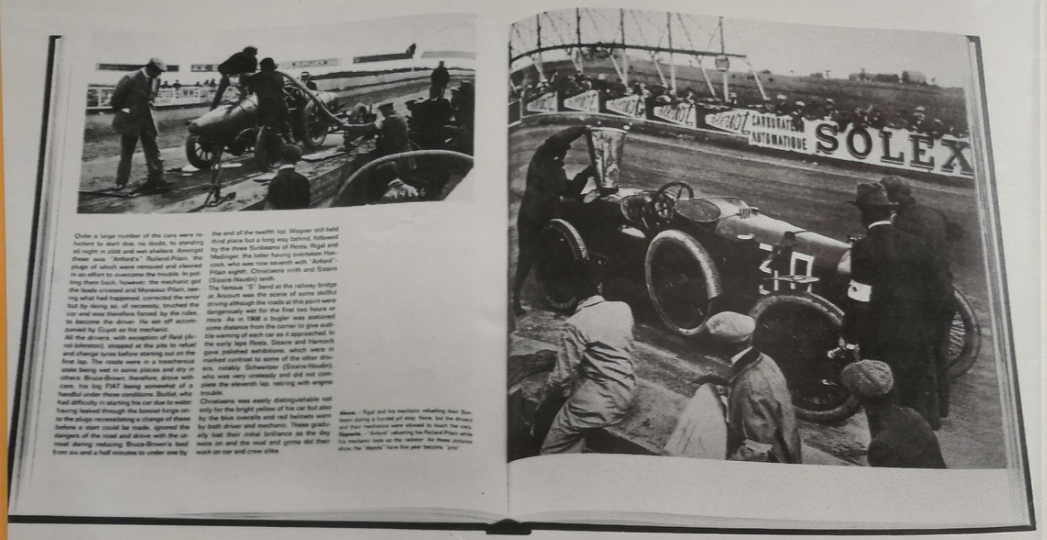

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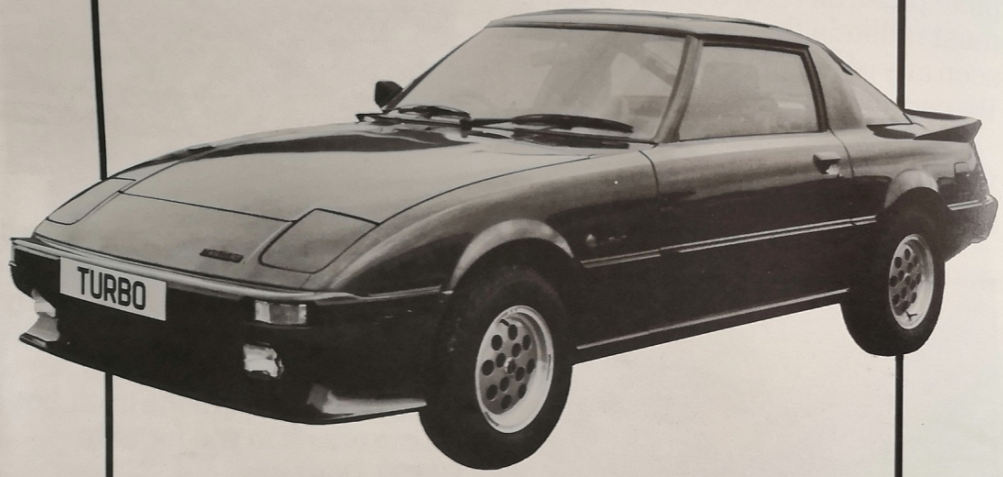

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